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February 7, 2025

<u>VIA CM/ECF</u>

Clifton Cislak
Clerk of Court
U.S. Court of Appeals for the District of Columbia Circuit
333 Constitution Ave NW
Washington, DC 20001

Re: *Newman v. Moore*, No. 24-5173 (oral argument not scheduled)

Dear Mr. Cislak:

I write pursuant to Federal Rule of Appellate Procedure 28(j) to inform the Court of a recent development in the judicial conduct and disability proceeding underlying the above-captioned case.

On September 25, 2024, Plaintiff moved the Judicial Council of the Federal Circuit to reconsider her suspension from hearing new cases. As the Chief Judge and Special Committee to which the Judicial Council referred this motion have previously explained, consistent with past practice, they resolved to release this motion publicly in a coherent batch, subject to proper redactions. Today, the Special Committee issued a response to Plaintiff's motion for reconsideration, and, pursuant to Plaintiff's written request,[1] *see* 28 U.S.C. § 360(a)(3), has published the motion, the response, and related filings. Order, *In re Complaint No. 23-90015* (Fed. Cir. Feb. 7, 2025),

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[1] Mot. to Reconsider at 2 n.1, *In re Complaint No. 23-90015* (Fed. Cir. Sept. 25, 2024), https://perma.cc/WPA8-E36X.

https://perma.cc/X5X5-GNQL; Fed. Cir., Release of Materials in Judicial Investigation, (Feb. 7, 2025), https://perma.cc/T5LB-98DA. The redactions in these materials reflect those requested by Plaintiff. A copy of the Special Committee's order issued today is attached. While Defendants do not believe these materials have any bearing on this Court's resolution of this appeal, they relate to arguments Plaintiff has made and materials Plaintiff has submitted. *See* Pl.'s Br. 2, 14-16; Pl.'s Supp. App'x.

Because these documents are no longer under seal in the Judicial Council proceeding, Defendants will file publicly a copy of their merits brief in this case, removing a redaction that had protected one sentence referencing Plaintiff's motion to reconsider. *See* Defs.' Br. 55 n.10. For the same reason, Defendants no longer object to the public release of the formerly sealed material in Plaintiff's opening brief and supplemental appendix.

Sincerely,

/s/ Maxwell A. Baldi
Maxwell A. Baldi

cc: All counsel of record (by CM/ECF)

United States Court of Appeals for the Federal Circuit

IN RE COMPLAINT NO. 23-90015

Before MOORE, *Chief Judge*, PROST and TARANTO, *Circuit Judges*.

PER CURIAM.

ORDER

On September 25, 2024, Judge Newman filed a Motion for Reconsideration of the Judicial Council's Order of September 6, 2024 (Motion). Judge Newman attached a report dated September 17, 2024 prepared by Dr. Aaron G. Filler (Filler Report) which, according to Judge Newman, "*conclusively* establishes that Judge Newman does not suffer from any mental disability that impairs her ability to fulfill the duties of her office." Mot. at 3 (emphasis added). On September 30, 2024, the Judicial Council referred the motion to this Committee for its consideration.

I.   Expert Reports

The Filler Report makes a number of claims about methods for diagnosing cognitive impairment and, in particular, about the use of particular imaging studies in making such a diagnosis. To aid the Committee in its consideration of the Filler Report, the Committee retained three experts to review the report and provide opinions on the assertions made in it. The Committee received reports from Dr. James M. Noble, Professor of Neurology at Columbia University Irving Medical Center (Exhibit A), Dr.

Jonathan DeRight, a clinical and forensic neuropsychologist, (Exhibit B), and Dr. Jason Johnson, Associate Professor of Radiology and BioMedical Imaging and Chief of Neuroradiology at Yale University (Exhibit C). These reports detail significant concerns about the Filler Report and the reports of Dr. Ted Rothstein and Dr. Regina Carney, on which Dr. Filler relied.

A. Dr. Noble's Expert Report

Dr. Noble is a Professor of Neurology at Columbia University Irving Medical Center, appointed in the Taub Institute for Research on Alzheimer's Disease and the Aging Brain, and Clinical Core Leader and Co-Director of the National Institute on Aging. Dr. Noble's report summarizes: "There are major problems, errors, and/or oversights, in each of the evaluations of Drs. Rothstein, Carney, and Filler." Noble at 5. Dr. Noble concludes: "In my professional opinion, based on the information that is available, in the standard of practice it cannot be said that [Judge Newman's] cognition is normal. A diagnostic workup including neuropsychological testing should have been recommended." *Id.* at 22.

1. Problems with Filler Report

According to Dr. Noble, Dr. Filler's evaluation has "major errors." *Id.* at 10.

a. A CT Perfusion scan is not a substitute for neuropsychological testing.

Dr. Noble explains that, in contrast to the assertions in the Filler Report, "[n]o brain imagining, including a CT Perfusion, can serve as a substitute for a comprehensive clinical assessment of cognitive impairment which includes a thorough history, standard examinations, and neuropsychological testing." *Id.* at 12. "CT Perfusion can only demonstrate that a region of the brain is effectively

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receiving blood. And even an area of the brain effectively receiving blood can still be dysfunctional." *Id.* at 13. In addition, "CT perfusion is not part of any guidelines for use in evaluations of cognitive aging disorders such as MCI [mild cognitive impairment] or dementia, or for Alzheimer's disease or related dementias." *Id.* at 16–17. Dr. Noble provided his opinion that, "[i]n my own experience as a specialist in dementia for many years, the approach Dr. Filler took is simply neither a standard nor acceptable clinical diagnostic approach in the field." *Id.* at 13.

b. Dr. Filler mislabeled the parts of Judge Newman's brain.

Dr. Noble also identifies a more specific error in Dr. Filler's reliance on the CT Perfusion scan. Dr. Filler labeled one image from the scan with two arrows pointing to spots which he says show "High Focal Blood Flow" in the left and right "Hippocampal Region[s]." Filler at 1. According to Dr. Filler, this is significant because "a very high rate of effective perfusion of the hippocampal region" corresponds to "high capability for integrative thought, memory and structured creative professional expression." Filler at 13. Dr. Noble explains, however, that the spot on the scan labeled by Dr. Filler is *not* the hippocampus:

> "[T]he hippocampus/hippocampal regions are several centimeters away from the area highlighted by Dr. Filler. It is anatomically not possible for the hippocampus to be where he says it is, and is not even visible on the image he shows."

Id. at 17.

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c. Dr. Filler's interview of Judge Newman was subjective and non-standard.

Dr. Noble explains that Dr. Filler's interview with Judge Newman was a "subjective," "non-standard approach" "not generally established or accepted in the field as a reasonable substitute for standard neuropsychological testing." *Id.* at 11.

2. Problems with Rothstein Report

Dr. Noble opines that Dr. Rothstein's reliance on Judge Newman's self-reporting and failure to consider collateral source information about Judge Newman's behavior "is a major flaw and substantially undermines any conclusion he could draw." Noble at 5. In addition, while Dr. Rothstein relied on a Montreal Cognitive Assessment ("MoCA") that he administered, Dr. Noble explains that the "MoCA was incorrectly scored." *Id.* Judge Newman's score should have been reported as 21/25, and that score, "when placed in context for expected performance for her age (95yr), education (25yr), and sex (female) combined places her at approximately the 16th percentile for all peers." *Id.* at 5–6. Dr. Noble explains the memory portion of Judge Newman's MoCA results (in which she could recall only one of five words after several minutes) "represents a major concern and indicates the need for further evaluation." *Id.* at 9. Indeed, "[t]he most common finding in MCI [mild cognitive impairment] and early Alzheimer's disease is exactly this pattern—forgetting what was just learned." *Id.*

3. Problems with Carney Report

Dr. Noble opines that Dr. Carney's 11-minute screening test taken together with Dr. Rothstein's MoCA and the affidavits from court staff "should at the very least have prompted a recommendation for further evaluation of

Judge Newman such as comprehensive neuropsychological testing." *Id.* at 10.

4. Neuropsychological testing is needed.

"Cognitive screening examinations, most of which take just minutes to complete, are no substitute for hours-long comprehensive neuropsychological testing." *Id.* at 10. Dr. Noble concludes "Neuropsychological testing would also be the best tool to inform the likelihood that she would be able to perform her job as a judge." *Id.* at 21.

B. Dr. DeRight's Expert Report

Dr. DeRight is a clinical psychologist, diplomate (i.e., Board Certified) in the specialty of Clinical Neuropsychology from the American Board of Professional Psychology, a clinical supervisor for clinical psychology at George Washington University, an approved forensic examiner for competency to stand trial and mental sanity evaluations, a qualified Baseline Assessment Program provider for the NFL Concussion settlement Program, and an approved evaluator for the NCAA Concussion Medical Benefits Settlement Program.

Dr. DeRight, like Dr. Noble, identified problems with the evaluations conducted by Dr. Filler, Dr. Rothstein, and Dr. Carney. His report details his conclusion that Dr. Filler's "opinion was not based on standard, reliable, and accepted methods to diagnose cognitive impairment," his "examination did not address all possible causes of cognitive impairment," and his "conclusion that no further testing is needed was premature and did not give proper weight to obvious signs of possible impairment." DeRight at 1.

1. Problems with Filler Report

Dr. DeRight explains, "[t]here are standard and accepted methods to assess for cognitive impairment, and

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simply administering a Perfusion CT scan is not one of them." *Id.* at 5. "Perfusion CT is not sensitive enough to elucidate the presence of cognitive problems on its own." *Id.* at 8. "The diagnostic criteria for major or mild neurocognitive disorder (i.e., 'dementia') in the DSM-5-TR involve neuropsychological testing or another qualified assessment (which would not be brain scan by itself)." *Id.* at 11. "Neuropsychological assessment is the cornerstone of measuring cognitive abilities and is the expected avenue for exploring potential cognitive deficits as they relate to a potential workplace problem." *Id.* at 13.

Dr. DeRight also explains that Judge Newman has medical conditions and takes medications that have a high risk of associated cognitive impairment, and Dr. Filler's examination failed to address other possible causes of cognitive impairment. *Id.* at 1, 19–20.

In Dr. DeRight's view, "Dr. Filler's opinion about Judge Newman's abilities based on a comparison of her activity during his oral arguments in front of her in 2019 and 2022 and his interview of her in 2024 is highly subjective, unscientific, and unreliable." *Id.* at 3. It is not "an objective cognitive test," "not a scientifically validated way to measure cognitive abilities" and "is not in line with guidelines in the field for assessing mild cognitive impairment or dementia." *Id.* at 6.

2. Problems with Rothstein and Carney Reports

Dr. DeRight explains that Dr. Rothstein's "brief cognitive screening measure," *id.* at 24, (the MoCA) was only "partially administered," *id.* at 26. "Such simple assessments of cognitive functions are not sufficient to assess a phenomenon as complex as decision-making and need to be completed by complementary neuropsychological assessment exploring the different skills involved in decision making ability." *Id.* at 26 (quoting T. Tannou et al., *Added*

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value of functional neuroimaging to assess decision-making capacity of older adults with neurocognitive disorders: protocol for a prospective, monocentric, single-arm study (IMAGISION), BMJ OPEN, 11(9), e053549 (2021)). According to Dr. DeRight, Dr. Rothstein's testing indicated that "Judge Newman exhibited significant problems with memory recall," *id.* at 27, and Dr. DeRight opined that the results provided "evidence of memory problems that indicate the need for further testing," *id.* at 28.

> "Dr. Rothstein's conclusions did not match his findings. He administered part of a cognitive screening measure, and the part that was administered indicated significant memory concerns."

Id. at 28.

Dr. DeRight also points out flaws in Dr. Carney's evaluation. He explains that the Modified Mini-Mental Status Exam (3-MS) administered by Dr. Carney is "a screening measure" that "is not appropriate for definitive and comprehensive exploration of cognitive difficulties in a fitness for duty exam." *Id.* at 29. He concludes: "Dr. Carney's examination of Judge Newman did not include comprehensive and reliable cognitive tests appropriate for Judge Newman's educational attainment, and Dr. Carney's conclusion is based on insufficient and incomplete information." *Id.* at 30.

C. Dr. Johnson's Expert Report

Dr. Johnson is a board-certified diagnostic radiologist with a certificate of added qualification in neuroradiology following a fellowship in diagnostic neuroradiology at Massachusetts General Hospital/Harvard Medical School. He is currently an Associate Professor of Radiology and

Biomedical Imaging at Yale University and the Chief of Neuroradiology.

Dr. Johnson identifies errors in Dr. Filler's report. Like Dr. Noble, he explains that Dr. Filler mislabeled images of Judge Newman's brain. Dr. Filler provided an image with arrows labeling "High Focal Blood Flow" in the left and right "Hippocampal Region[s]." Dr. Johnson explains that "what Dr. Filler has designated with his arrows are not the hippocampi." Johnson at 2. Instead, the image used by Dr. Filler "is an image of a slice of the brain at a position higher (closer to the top of the head) than the level of the hippocampi." *Id.* Dr. Johnson goes on to explain that the red areas in the image marked by Dr. Filler "do not reflect blood flow to the hippocampi," and in fact "elevated relative cerebral blood flow to this degree would be pathologic if observed in the hippocampus." *Id.*

Dr. Johnson also "disagree[s] with Dr. Filler's assertion that a Perfusion CT examination can be utilized to rule out apparent cognitive dysfunction." *Id.* at 4. In his professional opinion, "[t]he use of Perfusion CT to exclude cognitive dysfunction is not considered as a reasonable standard of care in clinical practice." *Id.* at 5. In his opinion, the likelihood that Judge Newman "has a cognitive dysfunction should be considered unchanged by this examination." *Id.*

* * *

The Committee directs Judge Newman to provide any written response to these expert reports no later than 9:00 a.m. on April 8, 2025. The Committee believes that a written response will be sufficient for the Committee's consideration of the points presented by Judge Newman's Motion. To the extent Judge Newman believes that additional process preceding that written response is warranted, the Committee directs Judge Newman to make a submission to the Committee specifying and justifying any requests for

such additional process. That submission is due by 9:00 a.m. on February 20, 2025.

II. Medical Records

The Committee previously ordered Judge Newman to produce all medical records reviewed by Dr. Filler. *See* Oct. 21, 2024 Order at 8. Dr. Filler concluded that "none of Judge Newman's medical conditions revealed by her records are ultimately contributory or relevant to her current mental state, and none suggest cognitive decline or neurological deficits." Filler at 18. He summarized Judge Newman's doctor visits and hospitalizations over a three-and-a-half-year period and provided a "Problem List as of August 22, 2024," which includes 20 medical problems. *Id.* at 22–23.

Dr. Filler concluded that thousands of pages of Judge Newman's medical records detailing serious medical conditions are not "relevant to her current mental state, and none suggest cognitive decline or neurological deficits." Filler at 18. At the same time, however, he relied on the assessment in one of those medical records: "The overall current assessment of her One Medical Group providers as of 7/31/2024 is: 'Able to carry on normal activity; minor signs or symptoms of disease.'" *Id.* at 24 (omitting Dr. Filler's bolding and underline). The Committee continues to believe that, to properly evaluate the reliability of Dr. Filler's opinions, which are explicitly based on her medical records, the Committee must have access to all of the medical records Dr. Filler reviewed.[1]

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[1] As just one example, the medical record stating "minor signs or symptoms of disease" and "able to carry on normal activity" does not identify what disease(s) this doctor was evaluating and what normal activities were contemplated.

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The expert reports of Dr. Noble and Dr. DeRight reinforce the need for the medical records. They both explain that Judge Newman's medical conditions and certain medications prescribed for her could cause or contribute to cognitive impairment. Noble at 19 ("Dr. Filler did not focus on several important medical problems, each of which could contribute to cognitive impairment" and "[s]everal medications in her history have known cognitive side effects"); DeRight at 19–20 (several of Judge Newman's medical conditions are "associated with high-risk cognitive impairment"). To assess the impact these conditions have on cognitive capacity and to test Dr. Filler's categorical rejection of these medical conditions as potential contributors to cognitive impairment, the Committee must be able to review the same records reviewed by Dr. Filler. *Cf.* Noble at 19 ("Because these records were not provided directly for my review, I am unable to determine further if these may be contributing factors.").[2]

The Committee's conclusion that it should have access to records considered and quoted by a proffered expert should not be surprising. As the Committee has explained, no decision-making body, including this Committee, can

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[2] There appears to be inconsistency in Judge Newman's self-report of her medical conditions to her different experts, which may be clarified by the records. *Compare* Filler at 18 ("Judge Newman denied . . . fainting episodes, and records do not reveal any such episodes") *with* Carney at 4 ("[Judge Newman] recalled a single event of syncope in April of 2023"); *cf.* DeRight at 17 (quoting scientific literature: "In a fitness for duty evaluation, the employee's self-report should not be taken at face value, and the evaluator 'should consider all sources of information, and identify or obtain additional data from others or from the documents.'").

accept a proffered expert opinion without taking steps to evaluate the reliability of that opinion. It is well established that courts play a vital role in assessing whether an expert's proffered opinion is reliable and sufficiently well-grounded even to be admitted into evidence, much less to be ultimately credited. *See* FED. R. CIV. P. 26(a)(2)(B); *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 589 (1993) ("[U]nder the [Federal] Rules [of Evidence] the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable.").

Federal Rule of Civil Procedure 26(a)(2)(B) requires that an expert report must contain "the facts or data considered by the witness in forming [the proffered opinions]." Fed. R. Civ. P. 26(a)(2)(B)(ii). "[T]he intention is that 'facts or data' be interpreted broadly to require disclosure of any material considered by the expert, from whatever source, that contains factual ingredients. The disclosure obligation extends to any facts or data 'considered' by the expert in forming the opinions to be expressed, not only those relied upon by the expert." FED. R. CIV. P. 26(a)(2)(B) Advisory Comm. Notes (2010).

> "[T]he prevailing interpretation of the rule came to be that counsel should expect that any written or tangible data provided to testifying experts will have to be disclosed."

8A CHARLES ALAN WRIGHT, ARTHUR R. MILLER & RICHARD L. MARCUS, FEDERAL PRACTICE AND PROCEDURE § 2031.1 (3d ed. 2010).

As the Supreme Court has made clear:

> [I]n federal court . . . an expert witness must produce all data she has considered in reaching her conclusions.

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Biestek v. Berryhill, 587 U.S. 97, 104 (2019).[3]

Although the Federal Rules of Civil Procedure do not apply to this proceeding, the Committee believes that the principles above provide a familiar and common-sense approach for the Committee to fulfill its duty in evaluating an expert report submitted to it. Judge Newman chose to provide the medical records to her expert, Dr. Filler, who reviewed them, reached conclusions based on them, summarized them, and at times quoted from them in his report. She asks this Committee to accept his opinion. She cannot now shield these records from the Committee.[4] For these reasons, Judge Newman's proposal to preclude the Committee from reviewing the medical records is not acceptable. Dec. 2, 2024 Resp. at 16–17.

The Committee again orders Judge Newman to produce all medical records reviewed by Dr. Filler.

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[3] *See also, e.g.*, *In re Pioneer Hi-Bred Int'l, Inc.*, 238 F.3d 1370, 1375 (Fed. Cir. 2001) ("[Rule 26] proceeds on the assumption that fundamental fairness requires disclosure of all information supplied to a testifying expert in connection with his testimony."); *Reg'l Airport Auth. of Louisville v. LFG, LLC*, 460 F.3d 697, 717 (6th Cir. 2006) ("Rule 26 creates a bright-line rule mandating disclosure of all documents . . . given to testifying experts.").

[4] Contrary to Judge Newman's assertion, the Committee is not "an opposing party." Dec. 2, 2024 Resp. at 15. The Committee is the investigative body charged with the sad task of "determin[ing] the full scope of the potential . . . disability" and providing a recommendation to the Judicial Council. Rules for Judicial-Conduct and Judicial-Disability Proceedings (Rules) Rule 13(a).

III.   Public Release of Materials

Throughout these proceedings, Judge Newman has demanded that all filings be made public.[5] The Committee would have preferred to maintain the confidentiality of the proceedings to spare Judge Newman a public vetting of her mental capacity. Nevertheless, Judge Newman has insisted on public disclosure. In response, consistent with maintaining the integrity of the proceedings, the Chief Judge, with the agreement of the Committee, has acquiesced in releasing materials to the public in batches and has indicated an intent to continue to do so. *See* July 8, 2024 Order; Dec. 3, 2024 Order.

Now, consistent with Rule 23(b)(7) and Rule 23(b)(8), the Chief Judge, with the agreement of the Committee, unseals and makes public—with only limited redactions[6]—all filings and orders subsequent to the Judicial Council's September 6, 2024 Order. These materials, including this

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[5] *See, e.g.*, June 28, 2024 Ltr at 1; June 12, 2024 Ltr ("sunlight is the best disinfectant;" Judge Newman "wishes to have all actions taken against her made public to the maximum extent possible"); Sept. 13, 2023 Ltr at 2 ("the public has a right to access Judge Newman's response in a timely fashion and form its own conclusions"); *see also* Dec. 2, 2024 Br. at 2 n.1; Mot. at 2 n.1; Aug. 14, 2024 Br. at 2 n.1; July 8, 2024 Ltr. at 1; May 29, 2024 Ltr. at 1; Sept. 19, 2023 Ltr. at 1 n.1; Aug. 21, 2023 Br. at 1 n.1; July 12, 2023 Ltr. at 1 n.1; July 5, 2023 Ltr. at 1 n.1; June 15, 2023 Ltr. at 1; May 25, 2023 Ltr. at 3 n.6; May 9, 2023 Ltr. at 3.

[6] The notes from Dr. Filler's interview of Judge Newman and additional images from the CT perfusion scan have not been unsealed because they include medical records Judge Newman may object to having released.

order and its attachments responding to Judge Newman's motion, are being released pursuant to Judge Newman's express written request that any response to her motion be made public. Mot. at 2 n.1 ("Pursuant to Rule 23(b)(7). . . Judge Newman requests and consents to the release of this filing and *the Committee's and Council's response thereto*." (emphasis added)).[7]

Other than the redaction of witness names, all redactions in these documents either were requested by Judge Newman (in documents she submitted) or have been applied by the Committee consistent with protecting the material Judge Newman herself redacted.

Although the Committee has acquiesced in these redactions for purposes of releasing materials today, the Committee believes there is a substantial question whether the redactions applied by Judge Newman are justified or whether further disclosures should be required under Rule 23(b)(8) "in the interest of assuring the public that the judiciary is acting effectively and expeditiously in addressing the relevant complaint proceeding." Rule 23(b)(8). The problem is that the selective redactions Judge Newman has applied to the Filler Report present a one-sided and

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[7] This request is consistent with Judge Newman's practice throughout these proceedings of requesting in advance public release of any response to her filings. *See, e.g.*, May 29, 2024 Ltr. at 1 (Judge Newman request "public release of . . . *any Order or other communication issued in response thereto*."); Aug. 13, 2023 Ltr. at 2 n.1 ("Judge Newman consents (subject to necessary redactions) to the public release of the present letter and *any Order or other communication issued in response thereto*."); July 12, 2023 Ltr. at 1 n.1 ("As with all other submissions to the Special Committee . . . we respectfully request . . . the public release of *any Order or other response to the present submission*.").

arguably distorted account of Dr. Filler's summary of Judge Newman's medical records. Judge Newman generally chose not to redact entries that presented normal results. *See, e.g.*, Filler at 21 ("Myocardial perfusion scan . . . Normal"). She redacted other entries that, if not redacted, might present a different overall picture.[8] Experts have opined that some of the redacted medical conditions and redacted medications may be related to cognitive impairment.[9] Noble at 19; DeRight at 19–20.

The redaction of this material from the Filler Report (and from the expert reports released today)[10] results in a one-sided public disclosure of Judge Newman's relevant medical history that may lead to public misunderstanding of information relevant to the Committee's task.

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[8] On December 2, 2024, Judge Newman provided the Committee with a redacted version of our October 21, 2024 order and asked for public release of that version. Today we release that version, in which Judge Newman permitted release of the following: "Dr. Filler reports a number of diagnosed health problems as of November 2022 affecting multiple organs (kidney, lung and heart)," Oct. 21, 2024 Order at 7 n.2. We will go no further in characterizing the redacted material than Judge Newman has at this time expressly permitted.

[9] As Judge Newman explained, she did not provide Dr. Filler with medical records that she deemed irrelevant, such as those from her ophthalmologist. Nov. 22, 2024 Newman Decl.

[10] The expert reports of Dr. Noble, Dr. DeRight, and Dr. Johnson have been redacted consistent with Judge Newman's redactions in the Filler Report.

Given that concern, and consistent with Judge Newman's repeated demands that all relevant material be made public, the Committee orders Judge Newman to respond no later than 9:00 a.m. on February 20, 2025 to address whether the redacted material (except for witness names) may be unsealed.

IT IS ORDERED THAT:

(1) To the extent Judge Newman believes that any additional process beyond a written response from her is warranted, she must submit her views in writing no later than 9:00 a.m. on February 20, 2025, as described above;

(2) Judge Newman must produce all medical records reviewed by Dr. Filler no later than 9:00 a.m. February 20, 2025;

(3) Judge Newman's response regarding the Committee's request to unseal the redacted materials (except for witness names) in this matter is due no later than 9:00 a.m. on February 20, 2025; and,

(4) Judge Newman's written response to the Committee regarding the attached exhibits and their relevance to the pending Motion is due no later than 9:00 a.m. on April 8, 2025.

SO ORDERED: February 7, 2025.

Report of Dr. James M. Noble

Professor of Neurology at Columbia University Irving Medical Center

Professional Background.

I am a Professor of Neurology at Columbia University Irving Medical Center (CUIMC). I have been a member of the faculty at Columbia University since 2008. I am also appointed in the Taub Institute for Research on Alzheimer's Disease and the Aging Brain and the GH Sergievksy Center, both at CUIMC. Among my various responsibilities I am the Clinical Core Leader and Co-Director of the National Institute on Aging (NIA) sponsored Columbia University Alzheimer's Disease Research Center. I am the program co-leader for the Columbia CMS Guiding an Improved Dementia Experience (GUIDE) Model program. I serve in numerous other key roles for these institutions, programs, and centers in support of decades-long local, national, and international research initiatives focused on Alzheimer's Disease and related dementias.

Prior to 2008, my training includes:

- Bachelor of Science, math and chemistry, Vanderbilt University (*magna cum laude* 1998)
- Doctor of Medicine, Emory University School of Medicine (2002)
- Post-graduate training at New York Presbyterian-CUIMC
    - o Preliminary medicine internship (2002-2003)
    - o Neurology residency (2003-2006)
    - o Behavioral neurology fellowship (2006-2008), through an NIH-sponsored training program focused on neuroepidemiology
    - o Master's degree in Epidemiology, Columbia University Mailman School of Public Health (2008)

I am board certified in:

- Neurology (#54098, American Board of Psychiatry and Neurology)
- Behavioral neurology & neuropsychiatry (#BNNP00326-08, United Council of Neurological Subspecialities)
- Public health (#20070713279, National Board of Public Health Examiners).

I have numerous certifications pertaining to my research and clinical work, including as a certified rater for the Clinical Dementia Rating (CDR) scale (effective 1/25/2011).

I have licenses to practice medicine in New York and New Jersey.

My work at Columbia University involves a mix of clinical duties and research principally focused on cognitive aging. I have received continuous funding from the NIA, a branch of the National Institutes of Health (NIH) since 2008 and lead several research projects and contribute to others. My publications include over 90 peer-reviewed articles, and I have been cited in other peer-reviewed publications over 8500 times. I am active in clinical care as part of one of the busiest cognitive aging practices in the country serving upwards of 3000 persons annually, which works closely with large clinical and research programs involving neuropsychological testing, multimodal brain imaging computed tomography (CT), magnetic resonance imaging (MRI), and molecular & functional positron emission tomography (PET). Clinical and epidemiological studies in which I lead or participate range

from local in the community surrounding CUIMC to national collaborative projects involving several thousand aging persons. On a monthly basis I am involved in the evaluation of around 100 individuals for a range of cognitive aging disorders including normal cognitive aging, mild cognitive impairment, and Alzheimer's disease and related dementias.

I also lead multigenerational neurological education programs in our community and direct or co-direct several neuroscience educational initiatives at the Columbia University Vagelos College of Physicians & Surgeons.

Aside from my current research and clinical work focusing on cognitive aging disorders including Alzheimer's disease and related dementias, my general neurology experience and knowledge is also extensive. I am co-editor of *Merritt's Neurology* (Wolters-Kluwer), a standard textbook of neurology with its most recent 14th edition published in 2021. Along with editorial responsibilities for the majority of the book, I wrote the chapters on the neurological history and examination (Section II: Approach to the Neurological Patient, Chapters 3 and 4) and was the Diagnostic Tests section editor (Section IV) which covers all standard diagnostic approaches in clinical neurology, including brain imaging and neuropsychological testing. I also authored or co-authored multiple chapters in *Merritt's Neurology 14th edition* including chapters on Dementia and Memory Loss (Ch. 12), Mild Cognitive Impairment (Ch. 50) and Alzheimer's disease (Ch. 51). I am also author of the dementia caregiver handbook *Navigating Life with Dementia* (Oxford University Press/American Academy of Neurology 2022). In recognition of my work, I have received several awards and am a fellow of the American Academy of Neurology. My complete CV is attached as a separate document.

I have no known prior personal or professional connection with any individuals involved in the case presented in this review. I am unaware of any potential conflicts of interest. My opinions offered in this summary are not part of my work at Columbia University.

Introduction

In March 2023 a proceeding was initiated to investigate concerns that Judge Pauline Newman was suffering from a disability, specifically cognitive impairment. A Special Committee was appointed to look into this matter. As part of that inquiry, the Special Committee received a number of affidavits from court employees. The Committee then directed Judge Newman to undergo an evaluation by a neurologist and a neuropsychologist selected by the Committee. Judge Newman declined to undergo those examinations. In September 2023 the Judicial Council of the Federal Circuit determined that Judge Newman should be suspended from hearing cases for 1 year. In September 2024 that suspension was renewed for another year.

On September 25, 2024, Judge Newman filed a motion for reconsideration that was primarily based on a report submitted by Dr. Aaron Filler. She had previously submitted reports of Drs. Ted Rothstein and Regina Carney, both of which Dr. Filler relied on in his report.

I have been asked to review these reports and provide an opinion on the soundness of the conclusions within those reports. My report reflects my opinions based on review of documents provided for me. I have not directly interviewed or examined Judge Newman. I do not intend to diagnose her, but rather to indicate how a cognitive diagnosis should have been determined in her circumstance, and how a workup should have been pursued. This document should not be interpreted as a substitute for direct clinical care.

Documents reviewed.

To develop this report, I reviewed all pages of provided material pertaining to Judge Pauline Newman (See *Appendix* for complete list). Documents to highlight include:

- The initial evaluation and subsequent summary of Dr. Ted Rothstein (neurologist affiliated with George Washington University Hospital) from 6/21/2023
- The independent medical examination by Dr. Regina Carney (forensic psychiatrist) from 8/25/23
- The summary authored by Dr. Aaron Filler (neurosurgeon) dated 9/17/2024 reflecting the evaluation which took place 8/24/2024.
- 8/22/2024 CT brain perfusion including documentation of results by Dr. Reza Taheri (radiologist at George Washington University), available axial source images, and the interpretation by Dr. Filler.
- Affidavits from court staff concerning interactions with Judge Newman, as listed in the attached *Appendix*. This portfolio of documents also included several email exchanges pertaining to Judge Newman from April and July 2023.
- The Orders of the Judicial Council from September 2023 and September 2024, and the motion for reconsideration from September 2024.

ANALYSIS

There are major problems, errors, and/or oversights, in each of the evaluations of Drs. Rothstein, Carney, and Filler. Their evaluations end up being wrong for different and sometimes overlapping reasons.

I.   Dr. Rothstein

Dr. Rothstein's evaluation is flawed for several important reasons. First, no collateral source was sought to provide independent observation of Judge Newman's daily cognitive performance. He makes no mention of having reviewed any of the affidavits available in the Special Committee's July 31, 2023 Report, so it appears he did not consult them. Only Judge Newman's own perceptions of performance were included. It is recognized that poor self-awareness of cognitive performance is a common problem in aging populations.[1] Important cognitive changes can be missed without formal assessment through testing and gathering of information through collateral sources.[2] A standard approach to establishing a diagnosis in clinical medicine relies on good information in the history and examination.[3] In the context of cognitive aging concerns, collateral source history substantively and often critically informs the history related to the patient.[4] Collateral source information relies on observations of a friend, family member, or coworker, and is placed in context with information provided by the patient. Dr. Rothstein's failure to consider any collateral source information is a major flaw and substantially undermines any conclusions he could draw.

Second, the MoCA was incorrectly scored. Dr. Rothstein should have added up the score to be 21/25, and not 24/28 as he reported. Because of Judge Newman's injured hand, the tests of writing (trail making, cube copying, and clock drawing), which comprise 5 of the 30 points, were not done. Thus, the total maximum score on Judge Newman's MoCA is 25, not 28. Of the 25 available points, Judge Newman missed 4 points specifically on the task of remembering 5 words for several minutes. The MoCA allows for an adjustment of scores for those unable to conduct the written/drawn tasks, and 25/30 is the final score after this adjustment.[5] Someone performing in the professional role of Judge Newman would be expected to have a perfect score or nearly so. Using the National Alzheimer's Coordinating Center (NACC) normative data[6] which has been developed based on testing of thousands of individuals, Judge Newman's MoCA score of 25/30 when further placed into context for

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[1] Sunderaraman P and Cosentino S. "Integrating the Constructs of Anosognosia and Metacognition: a Review of Recent Findings in Dementia." *Curr Neurol Neurosci Rep*. 2017 Mar;17(3):27.).

[2] Villareal DT and Morris JC. "The Diagnosis of Alzheimer's disease." *J Alzheimers Dis*. 1999 Nov;1(4-5):249-63

[3] Bowen JL. "Educational strategies to promote clinical diagnostic reasoning." *N Engl J Med*. 2006 Nov 23;355(21):2217-25

[4] Villareal et al.

[5] https://mocacognition.com/faq/ The test may be scored on 25 and converted back to 30 using the following equation: (($SCORE$ out of 25) × 30) ÷ 25. For Judge Newman, this converted score is calculated as (20 x 30) ÷ 25 =25.2 or 25/30. It is noted that this conversion has not been validated but serves as the best approximation of her cognitive performance at the time of Dr. Rothstein's evaluation.

[6] Uniform Data Set v3 Neuropsychological Battery norms calculator v March 10, 2017: https://files.alz.washington.edu/documentation/uds3-norms-calculator.xlsx

expected performance for her age (95y), education (25y), and sex (female) combined places her at approximately the 16th percentile for all peers. Adjusting for education alone, her score places her at the 6th percentile. In sum, using an established nationwide sample, 84-94% of Judge Newman's age-education-sex matched peers would be expected to perform better on the MoCA than Judge Newman.[7] It is established that the average MoCA score for mild cognitive impairment (MCI) is 22 with a range of 19-25[8]. Given that Judge Newman's MoCA score was 25/30, it is further evidence to potentially diagnose MCI. Whether considering adjusted or unadjusted MoCA scores, either way her difficulties should have prompted further evaluation such as with formal neuropsychological testing.

It is important to assure a common understanding of terms related to cognitive aging, including *normal cognitive aging*, *mild cognitive impairment*, and *dementia*.[9] It is common for older adults to slow down in the quickness of their responses or demonstrate slight issues with memory, focus, or attention. Normal cognitive aging is defined based on normative test performance for age, sex, and education, and when there is no evidence of cognitive impairment reported by persons or observed by others. In contrast and at the other end of the cognitive aging spectrum, *dementia* is defined by observed or demonstrated cognitive or behavioral changes which have gotten to the point that someone needs help from others to accomplish their daily routines such as appearing for appointments, completing tasks at work or at home, taking medications, or traveling to new places. Mild cognitive impairment covers a broad range of cognitive changes in a transition between normal cognitive aging and dementia. Depending on one's job responsibilities, someone with MCI may be independent in some daily routines (going to appointments, taking medications, etc.) but unable to complete more complicated or demanding tasks such as those inherent in jobs requiring strong cognitive abilities. Visually, this continuum is represented in this figure:[10]

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[7] Recognizing that UDSv3 normative data is limited for persons 90y and above as well as for those with more than 20y of education, another approach is to presume more conservative models with Judge Newman (artificially) being 89y old with 20y of education. This more conservative model still reveals that sex, age, and education adjusted MoCA score of 25/30 is at the 29th percentile of expected performance and with education-only adjusted score being at the 17th percentile. Thus 71-83% of all persons with her background would be expected to perform better than Judge Newman on the MoCA.

[8] https://mocacognition.com/faq/

[9] It is recognized that the terms *mild cognitive impairment* and *dementia* are interchangeably referred to in the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) as *minor neurocognitive disorder and major neurocognitive disorder* respectively. Their constructs are functionally equivalent, with DSM-5 terminology intending to destigmatize the term dementia. However, neurological clinical practice and research diagnostic standards continue to use and favor the terms MCI and dementia.

[10] Figure 1.1 Progression of changes in normal aging, MCI, and dementia from Chapter 1. "Dementia, Mild Cognitive Impairment, and Normal Changes of Aging: What's the Difference?" in *Navigating Life with Dementia* (James M. Noble, Oxford University Press/American Academy of Neurology, 2022)

Normal cognitive aging	Mild cognitive impairment (MCI)	Dementia
• A range of changes in thinking and memory considered to be normal for age • Not an immediate precursor to MCI or dementia • Based on normative data across ages, languages, cultures	• A range of changes in thinking and memory NOT considered to be normal for age • Often a precursor for dementia • Without help, person remains independent in all regards	• A range of changes in thinking and memory NOT considered to be normal for age • Early: Person needs assistance in order to remain independent • Late: Person needs assistance in basic activities of daily living

To better understand the specific problem Judge Newman faced on her MoCA, it is helpful to know what is in the MoCA, shown below. As detailed above, because of her injured writing hand, Judge Newman could not complete the written items, identified in the blue oval. Her main difficulty with the test is highlighted in the red boxes. After being instructed

MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 7.1 Original Version

VISUOSPATIAL / EXECUTIVE — Copy cube — Draw CLOCK (Ten past eleven) (3 points) — POINTS
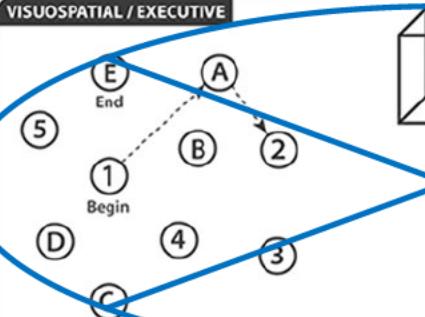
[ ] Contour [ ] Numbers [ ] Hands ___/5

NAMING [ ] [ ] [ ] ___/3

MEMORY Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.		FACE	VELVET	CHURCH	DAISY	RED	No points
	1st trial						
	2nd trial						

ATTENTION Read list of digits (1 digit/ sec.). Subject has to repeat them in the forward order [ ] 2 1 8 5 4
Subject has to repeat them in the backward order [ ] 7 4 2 ___/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors
[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B ___/1

Serial 7 subtraction starting at 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65
4 or 5 correct subtractions: **3 pts**, 2 or 3 correct: **2 pts**, 1 correct **1 pt** 0 correct: **0 pt** ___/3

LANGUAGE Repeat : I only know that John is the one to help today. [ ]
The cat always hid under the couch when dogs were in the room. [ ] ___/2

Fluency / Name maximum number of words in one minute that begin with the letter F [ ] _____ (N ≥ 11 words) ___/1

ABSTRACTION Similarity between e.g. banana - orange = fruit [ ] train – bicycle [ ] watch - ruler ___/2

DELAYED RECALL Has to recall words WITH NO CUE	FACE [ ]	VELVET [ ]	CHURCH [ ]	DAISY [ ]	RED [ ]	Points for UNCUED recall only	___/5
Optional Category cue							
Multiple choice cue							

ORIENTATION [ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City ___/6

© Z.Nasreddine MD — www.mocatest.org — Normal ≥26 / 30 — TOTAL ___/30
Add 1 point if ≤ 12yr edu

to remember five words (top red box, typically "face, velvet, church, daisy, red"), and being given two trials to repeat them back to register them in mind, Judge Newman could recall only 1 of 5 words after a 5-minute delay (lower red box). A straightforward interpretation is that 80% of the information Judge Newman just learned on that test was forgotten.

The most common finding in MCI and early Alzheimer's disease is exactly this pattern—forgetting what was just learned.[11] In practice, this finding alone represents a major concern and indicates the need for a further evaluation. In my opinion Dr. Rothstein's impression is completely wrong when he stated "slight limitation in immediate memory as reflected in her MoCA evaluation. Her cognition is otherwise completely normal." This summary clearly understates or ignores what the MoCA demonstrated, even in the absence of collateral source information. There are meaningful memory changes which should have prompted at least a consideration of MCI and warranted further workup including neuropsychological testing. Further, when the MoCA score is considered in conjunction with the collateral source information contained within the affidavits, a diagnosis of mild cognitive impairment is even more strongly suggested.

II.   Dr. Carney

Dr. Carney's evaluation also has significant problems. Dr. Carney mentions reviewing the "publicly available proceedings." This presumably includes the substance of the affidavits that are described extensively in the Judicial Council's Order of September 20, 2023. Those affidavits clearly demonstrate that multiple persons observed meaningful longitudinal changes in cognition and behavior in Judge Newman.

My review of those statements is notable for the following:

- ▮▮▮▮▮▮▮ who worked with Judge Newman for nearly 17 years and noted problems forgetting over the past few years, leading Judge Newman to rely on others to help with her online connectivity and computer issues. ▮▮ report of difficulty completing security trainings was particularly notable given that he had to "feed her answers." This statement alone should have been considered as a dramatic change from her prior abilities and a meaningful drop from her expected performance.
- By January 2023, ▮▮▮▮▮▮ noted that an entire conversation they had was forgotten within 12 days. By March-April 2023, ▮▮▮▮▮▮, who worked daily with Judge Newman for nearly 14 months by 4/2023 noted "on multiple occasions" that she had trouble recalling events and information and that "her memory loss and confusion has increased significantly" over that time.
- ▮▮▮▮▮▮▮ (also of IT) noted she routinely misplaced files in her computer.
- In both IT statements there are themes of Judge Newman blaming others for what is most likely her own declining capacity to use systems in an independent manner.
- Two emails about the same topic 4/19/23 and 4/27/23 suggest that Judge Newman had forgotten that one of her staffers ▮▮▮▮▮▮▮ had been reassigned, even though Judge Newman herself approved it.

[11] Honig LS, Salardini A, Kreisl WC, and Noble JM. Chapter 50: "Mild Cognitive Impairment." *In: Merritt's Neurology 14th Edition* (Eds. Louis, Mayer, and Noble, Wolters-Kluwer, 2021)

- A lengthy email exchange July 6-7, 2023 about access to her files highlights that Judge Newman was unable to understand multiple clear explanations given by others.

Dr. Carney made no mention of any of these documents which include critically important and revealing information.

Dr. Carney's evaluation was also problematic. The assessment included a 3-MS screening exam, which took a mere 11 minutes to complete. Judge Newman scored 98/100, losing points for only being able to name eight 4-legged animals in 20 seconds, scoring 8 out of 10 on this 3-MS subtest. 10 would have earned her full 10 points. Judge Newman's 4-legged animal score places her lower than 25th percentile in a study including more than 18,000 older adults.[12] That is, 75% of all persons could name 9 or 10 animals while she could only name 8. With a result like this, for a person with her educational history and background, this serves as another red flag. Dr. Carney reviewed Dr. Rothstein's note but makes no mention of the low score on the MoCA.

Cognitive screening examinations, most of which take just minutes to complete, are no substitute for hours-long comprehensive neuropsychological testing. It is well-established that cognitive screening examinations are often insensitive to early changes in cognition specifically in highly educated and accomplished persons, and that even normal scores can be incorrect (also known as the false-negative rate) in upwards of 50% of tested individuals.[13,14] Simply put, very smart and accomplished people like Judge Newman can do well on cognitive screening examinations, even when important, meaningful, ongoing cognitive changes are happening, and these are only revealed on more in-depth neuropsychological assessments. Dr. Rothstein's MoCA, the affidavits, and Dr. Carney's 3-MS test, taken individually or together, all of which were available to Dr. Carney, should at the very least have prompted a recommendation for further evaluation of Judge Newman such as comprehensive neuropsychological testing.

III. Dr. Filler

Dr. Filler's evaluation is incomplete and has major errors that undermine his conclusions. Dr. Filler reported having 3 elements of his evaluation, including a "detailed classical neurological examination," a "direct real-time interview," and "advanced functional testing," and each is problematic.

His neurological examination is incomplete because it includes no standardized assessment of cognitive abilities, such as a MoCA or 3-MS as used by Drs. Rothstein and Carney. Without these, there was no opportunity to assess problems with memory as identified in Dr. Rothstein's evaluation. Dr. Filler had access to reports of Drs. Rothstein and

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[12] Ryan J, et al. "Normative performance of healthy older individuals on the Modified Mini-Mental State (3MS) examination according to ethno-racial group, gender, age, and education level." *Clin Neuropsychol*. 2019 May;33(4):779-797

[13] O'Bryant SE et al. "Detecting dementia with the mini-mental state examination in highly educated individuals." *Arch Neurol*. 2008 Jul;65(7):963-7.

[14] Tombaugh, TN et al. "Mini-Mental State Examination (MMSE) and the Modified MMSE (3MS): a psychometric comparison and normative data." *Psychological Assessment* 8.1 (1996): 48

Carney from a year earlier. Standard practice would have been to repeat at least one of these instruments so that there could be a direct comparison one year to the next. It is established that repeating a cognitive screening test, such as the MoCA, can be helpful in identifying progression of cognitive problems.[15] Given that Judge Newman had meaningful cognitive problems in both evaluations by Drs. Rothstein and Carney in 2023, this should have prompted a repeat assessment by Dr. Filler during his evaluation in August 2024. Furthermore, Dr. Filler reported Dr. Rothstein's MoCA as "normal" when it was not.

Dr. Filler's direct real-time interview which intended to "make direct relevant personal experience comparisons relative to two oral arguments in 2019 and 2022 before panels which included Judge Newman" relied on his own subjective impressions of Judge Newman's performance on several hypothetical discussions and his own impression of past performance when presenting to her in a prior professional experience. This is a non-standard approach, is not generally established or accepted in the field as a reasonable substitute for standard neuropsychological testing, and is not part of a standard or recommended diagnostic approach for persons with cognitive aging problems. As I wrote in the *Merritt's Neurology* textbook, there is an established importance of using a standardized approach to the mental status examination:

> "There are several reasons that the neurologic examination includes a standardized mental status assessment. First, any standardized cognitive screening examination will often have been developed in the context of hundreds, if not thousands, of applications and multiple social economic and cultural contexts, making its interpretation more generalizable. Second, at the level of the examiner, use of the same examination repeatedly may give the examiner greater confidence in examination skill and interpretation based on a learned experience of typical or expected responses developed over the course of giving the same test in multiple clinical contexts. Third, most standardized mental status examinations allow for a hierarchical approach to understanding someone's cognitive abilities. For instance, for a task of delayed recall, it is important to understand not only what a patient can freely recall but also what the patient may recognize either through the contextual or categorical clue given for recognition tasks or subsequently through list of forced choices. Using a sequential, hierarchical approach to assessing memory abilities allows for determination of free word retrieval (presumably a harder response) versus recognition (by choices), which are thought to be independent of registration tasks. Finally, serial assessments of an individual patient may require adjustment of examination techniques to avoid the potential effects of learning or practice.
>
> Many caveats apply to interpreting the mental status examination and thus require understanding and how it is devised for each patient, particularly how it is tailored to each cultural context. For instance,

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[15] Freitas S et al. "Montreal cognitive assessment: validation study for mild cognitive impairment and Alzheimer disease." *Alzheimer Dis Assoc Disord.* 2013 Jan-Mar;27(1):37-43

education and lifetime cognitive abilities play a strong role in one's ability to interpret both normal and abnormal mental status examination findings. Prior to each mental status examination, developed within social history must be a clear sense of someone's educational history, literacy, and thus likely expected performance on mental status testing. When interpreting formal neuropsychological testing, two norms are considered: the person's premorbid intellectual capacity as determined by intelligence quotient and professional accomplishments as well as comparison to normative values based on peer performance matched to age, education, and potentially primary language."[16]

Thus, even the approach Dr. Filler took has major vulnerabilities in that by skipping a standardized cognitive screening evaluation he missed important, basic, and fundamental elements of assessment which are readily and easily learned through standardized cognitive screening assessments. The approach Dr. Filler takes completely misses the opportunity for an objective standardized assessment and instead relies on a subjective and non-standard approach.

Dr. Filler advocated for use of CT Perfusion as a substitute for neuropsychological testing. On page 3 of his report, Dr. Filler states "…there is now a widespread medical understanding that Perfusion CT can be used to identify or rule out the presence of dementia or cognitive impairment on a reliable objective basis" and on page 16 of his report, he states "There is substantial medical literature that convincingly supports the proposition that high speed perfusion brain imaging supplants the inevitably subjective practice of neuropsychology in the fundamentals of cognitive assessment." He also states "Judge Newman's Perfusion CT test results obviate any need for a neuropsychology test battery—an outdated methodology, little different in design than their 16th century versions, and administered by non-physicians." All these assertions are wrong in several ways.

First, no brain imaging, including CT Perfusion, can serve as a substitute for a comprehensive clinical assessment of cognitive impairment which includes a thorough history, standardized examination, and neuropsychological testing. All major diagnostic criteria addressing the assessment of cognitive impairment begin by framing matters on a clinical and functional basis. That is, a diagnosis relies on day-to-day impacts of cognitive problems and observable measures of cognition. No brain imaging study can serve as a substitute for, or *be used instead of*, a clinical assessment. Structural brain imaging studies, such as CT or MRI, are routinely used to identify and treat potentially reversible causes of cognitive changes such as tumor or hydrocephalus.[17] Other studies such as PET imaging can help understand the cause of MCI or dementia. However, using a brain imaging study to determine a *cause* of memory loss is very different from using a brain imaging study *instead of* a cognitive assessment. Regardless, no structural brain imaging was ever done for Judge

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[16] Noble JM. Chapter 4: "The Neurological Examination." *In: Merritt's Neurology 14th Edition* (Eds. Louis, Mayer, and Noble, Wolters-Kluwer, 2021)

[17] Knopman DS et al. "Practice parameter: Diagnosis of dementia (an evidence-based review) Report of the Quality Standards Subcommittee of the American Academy of Neurology." *Neurology* 56.9 (2001): 1143-1153

Newman and there is no reasonable or obvious explanation for why one was not recommended.[18] In my own experience as a specialist in dementia for many years, the approach Dr. Filler took is simply neither a standard nor acceptable clinical diagnostic approach in the field.

CT Perfusion can only demonstrate that a region of the brain is effectively receiving blood. And even an area of the brain effectively receiving blood can still be dysfunctional. Therefore, a normal CT Perfusion does not exclude the presence of important cognitive changes.

The only clinically indicated use of CT Perfusion is for people presenting with ischemic stroke.[19] CT Perfusion can show that an area of the brain is not receiving enough blood because of the stroke. CT perfusion can also show if parts of the brain might recover if more blood supply could be established. CTP is only supported by the Centers for Medicare and Medicaid (CMS) for the workup of stroke (CMS policy A58152)[20] and its syndromes. Further, CT Perfusion is not recommended nor used as a standard tool in assessments of cognitive impairment, including MCI or dementia. As noted below, there are no guidelines anywhere recommending its use in the diagnostic workup of these conditions. Moreover, the primary use of CTP, which Dr. Filler notes in several references, relates to cerebrovascular perfusion, but stroke was not ever mentioned as being considered in the differential diagnosis of any of the physicians evaluating Judge Newman, including Dr. Filler. CTP cannot independently diagnose or clarify the nature of cognitive impairment in someone such as Judge Newman. CTP only provides a biological indication that tissue is getting perfused with blood.

CT Perfusion is infrequently used in research settings exploring cognitive aging. The research papers cited by Dr. Filler appear to reflect what amounts to most of the world's literature on the use of CTP in humans for diagnosing dementia, which itself is very limited. To be clear, this handful of articles does not establish what Dr. Filler states, "that Perfusion CT can be used to identify or rule out the presence of dementia or cognitive impairment on a reliable objective basis." These few articles also do not support Dr. Filler's claim of "substantial medical literature that convincingly supports the proposition that high speed perfusion brain imaging supplants" other established tests and approaches in diagnosing cognitive impairment, including neuropsychological testing. In several instances, articles cited by Dr. Filler did not directly study humans or did not involve CT Perfusion. The key articles cited by Dr. Filler are summarized below.

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[18] A standard CT scan should not be confused with a CT Perfusion scan. A CT scan is dedicated to studying the structural elements of the brain and is capable of identifying tumors, strokes, and atrophy patterns, among other changes. A CT Perfusion uses the same radiological platform but is focused on understanding how blood perfuses the brain or if there are any deficits in this regard, particularly as is found in someone with acute ischemic stroke. As reiterated in footnote 39, it is recognized that Judge Newman's pacemaker may not have been compatible with an MRI, and it is common practice for such persons to undergo a standard head CT in the place of an MRI for the purposes of having a structural diagnostic brain image.

[19] Shoor P, Chow DS, Lignelli A. Chapter 21: "Computed Tomography." *In: Merritt's Neurology 14th Edition* (Eds. Louis, Mayer, and Noble, Wolters-Kluwer, 2021)

[20] CMS.gov Billing and Coding: Computed Tomography Cerebral Perfusion Analysis (CTP, policy A58152). https://www.cms.gov/medicare-coverage-database/view/article.aspx?articleId=58152

Several articles comprise a background to Dr. Filler's review of human studies and include the following:

1. Kisler et al. is a review of brain blood vessel anatomy and physiology. The article did not directly study any human individuals.[21]
2. The study of Ruitenberg et al. did not involve CT Perfusion scans.[22]
3. The study of Togao et al. did not study or involve CT Perfusion scans.[23]
4. The study of Pasternak et al. also did not study or involve CT Perfusion scans.[24]
5. The study of Hart et al. did not study or involve CT Perfusion scans.[25]
6. Latchaw et al. is a summary of various imaging modalities for the diagnosis of cerebral ischemia—stroke.[26]

The primary human studies cited by Dr. Filler in his report are as follows:

7. The study of Metting et al. involved CT Perfusion on 18 persons with a mean age of 35y who recently experienced traumatic brain injury (TBI).[27] That population has no relevance to Judge Newman since she is not known to have experienced TBI. Moreover, when Dr. Filler stated that this study included 191 persons, he did not mention that only 18 ended up having CT Perfusion brain imaging done.
8. Streitparth et al. is a study of 55 persons including 13 with severe dementia, 36 with mild dementia, and 6 who were cognitively normal, overall average age of 82y.[28] It did not study persons with MCI and demographics such as education are not mentioned. This is a small pilot study and limited inferences can be drawn.[29]
9. Dash et al. is a study of 25 persons with dementia (10 with Alzheimer's disease and 15 with vascular dementia) along with 25 cognitively healthy persons; mean age was 61-62y.[30] It did not study persons with MCI. Other demographics such as

[21] Kisler K et al. "Cerebral blood flow regulation and neurovascular dysfunction in Alzheimer disease." Nat Rev Neurosci. 2017 Jul;18(7):419-434.

[22] Ruitenberg A et al. "Cerebral hypoperfusion and clinical onset of dementia: the Rotterdam Study." *Ann Neurol*. 2005 Jun;57(6):789-94.

[23] Togao O et al. "Arterial Spin Labeling-Based MR Angiography for Cerebrovascular Diseases: Principles and Clinical Applications." J Magn Reson Imaging. 2024 Oct;60(4):1305-1324.

[24] Pasternak M et al. "Longitudinal cerebral perfusion in presymptomatic genetic frontotemporal dementia: GENFI results." *Alzheimers Dement*. 2024 May;20(5):3525-3542.

[25] Hart J et al. "Neuroimaging of cognitive dysfunction and depression in aging retired National Football League players: a cross-sectional study." JAMA Neurol. 2013 Mar 1;70(3):326-35.

[26] Latchaw RE et al. "Guidelines and recommendations for perfusion imaging in cerebral ischemia: A scientific statement for healthcare professionals by the writing group on perfusion imaging, from the Council on Cardiovascular Radiology of the American Heart Association." *Stroke*. 2003 Apr;34(4):1084-104.

[27] Metting Z et al. "Cerebral perfusion and neuropsychological follow up in mild traumatic brain injury: acute versus chronic disturbances?" *Brain Cogn*. 2014 Apr:86:24-31.

[28] Streitparth F et al. [Diagnostic value of multislice perfusion CT in dementia patients] *Radiologe*. 2008 Feb;48(2):175-83. [primary Article is in German; I reviewed an English translation using Google Translate]

[29] Aside from the points made, this article is only available in German. I relied on Google translate to provide demographic information not otherwise included in the article's abstract.

[30] Dash S et al. "Perfusion CT imaging as a diagnostic and prognostic tool for dementia: prospective case-control study." *Postgrad Med J*. 2023 May 22;99(1170):318-325.

education are not mentioned. This is also a small pilot study, focused on 10 people with Alzheimer's disease and 15 with vascular dementia, and limited inferences can be drawn.

10. Zhang et al. is the only cited and reasonably designed study of CT Perfusion. The study conducted CTP on 30 persons with MCI (average age 70y), 100 persons with dementia (average age 70y), and 50 without cognitive impairment (average age 68y).[31] Its primary limitations are its generalizability, as it was conducted at a single center in China. The stated demographics for age and education would be unlikely to include someone similar to Judge Newman. Importantly, as noted below, Dr. Filler also incorrectly applies the key study findings because of a major error in his anatomical identification.

Altogether in the literature Dr. Filler cites, there were just 3 relevant human studies of CTP comprised of 174 persons with dementia, 30 persons with MCI, and 81 who were cognitively normal. This is a far cry from the amount of research necessary to provide clear and convincing evidence to establish imaging studies (or other tests) be recommended for use in the evaluation of cognitive aging disorders. In my own search of the medical literature as indexed in the National Library of Medicine (pubmed.gov) and Google Scholar, there was little else beyond what Dr. Filler cited. A standard approach in searching the medical literature involves the use of National Library of Medicine's Medical Subject Headings (MeSH, pertinent in this case are MeSH terms cognitive dysfunction, Alzheimer's disease, human, computed tomography) as well as more specific search terms when called for, and in this case included "mild cognitive impairment," "Alzheimer disease," "Dementia," "CT Perfusion," "Perfusion CT."[32] Each search was then limited further to human studies. Taking this approach found no additional studies using CTP in MCI. There were 4 additional studies involving dementia or Alzheimer's disease and CTP—2 studies each from two research groups. Because it appears each group used the same or largely overlapping persons between their two publications, functionally this yields just two groups of study participants evaluated using CTP and not otherwise cited by Dr. Filler. One of the studies, led by Zhen Tang of China, used CT Perfusion imaging[33] in a single site study which included 52 persons with AD, 43 with vascular dementia compared with 30 healthy subjects; overall study participants ranged in age from 50-92 years. Any study of this small size is considered pilot data and its generalizability is limited. As an example in this case, all persons included in the study were younger than Judge Newman. In the other pair of research papers, both led by Anna Zimny of Poland, CTP was used to explore if it may differentiate causes of dementia in 41 persons with dementia[34] or the degree of cognitive impairment among 64 persons,[35] all of whom also had dementia. Neither study from the Zimny research group included persons with MCI or

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[31] Zhang et al. "The value of whole-brain CT perfusion imaging and CT angiography using a 320-slice CT scanner in the diagnosis of MCI and AD patients." *Eur Radiol.* 2017 Nov;27(11):4756-4766.

[32] Medical literature searches were conducted 1/21/2025.

[33] Tang Z et al. "Low-dose cerebral CT perfusion imaging (CTPI) of senile dementia: diagnostic performance." *Arch Gerontol Geriatr.* 2013 Jan-Feb;56(1):61-7.

[34] Zimny A et al. "Does perfusion CT enable differentiating Alzheimer's disease from vascular dementia and mixed dementia? A preliminary report." *J Neurol Sci.* 2007 Jun 15;257(1-2):114-20.

[35] Zimny A et al. "Analysis of correlation between the degree of cognitive impairment and the results of perfusion CT in patients with dementia." *Med Sci Monit.* 2007 May:13 Suppl 1:23-30.

persons who were cognitively normal. Even after including the two additional studies of CTP identified in my literature search, combining these with Dr. Filler's literature review still only amounts to five research teams who have studied CTP in 333 persons with dementia, 30 persons with MCI, and 111 who were cognitively normal. This summary of evidence remains quite small and is not sufficient to inform practice or guidelines.

As a point of comparison, using a similar literature search strategy (using the above approach, substituting CTP with "FDG-PET" and "amyloid-PET"), FDG-PET and Alzheimer's disease yields 1,178 human studies, FDG-PET and MCI yields 593 studies; Amyloid-PET and Alzheimer's disease yields 1,037 human studies, and amyloid-PET and MCI yields 385 human studies. In the field of medicine, it takes a substantial number of studies—hundreds to thousands, not single digits—to determine if a diagnostic test ought to become part of standard clinical practice. In order for FDG-PET[36] and amyloid-PET[37] to become part of standard practice, each technique was developed through hundreds of studies involving thousands of patients to eventually determine the clinical utility, applicability, and generalizability. Most recently, a single amyloid-PET study involved more than 11,000 participants in America[38] and was a major factor in determining not only clinical practice but also CMS coverage determinations for its use in the workup of MCI and early-stage dementia due to Alzheimer's disease. It requires an overwhelming amount of convincing evidence in order for any diagnostic test to be included in major diagnostic criteria or standard evaluative recommendations, as has been the case for MRI[39] and brain PET imaging.[40]

For all these reasons, CT perfusion is not part of any guidelines for use in evaluations of cognitive aging disorders such as MCI[41] or dementia,[42] or for Alzheimer's disease[43,44] or

[36] Ramusino MC et al. "Diagnostic performance of molecular imaging methods in predicting the progression from mild cognitive impairment to dementia: an updated systematic review." *Eur J Nucl Med Mol Imaging*. 2024 Jun;51(7):1876-1890.

[37] Rabinovici G et al. "Association of Amyloid Positron Emission Tomography With Subsequent Change in Clinical Management Among Medicare Beneficiaries With Mild Cognitive Impairment or Dementia." *JAMA*. 2019 Apr 2;321(13):1286-1294.

[38] Rabinovici et al.

[39] It is recognized that Judge Newman's pacemaker may not have been compatible with an MRI, and it is common practice for such persons to undergo a head CT in the place of an MRI for the purposes of having a structural diagnostic brain image. While the resolution of a head CT is not as refined as a brain MRI, in persons experiencing cognitive impairment, a head CT routinely eliminates several diagnostic considerations such as a large stroke, brain tumor, or hydrocephalus.

[40] Jack et al. "NIA-AA Research Framework: Toward a biological definition of Alzheimer's disease" *Alzheimers Dement*. 2018 Apr;14(4):535-562.

[41] Petersen RC et al. "Practice parameter: early detection of dementia: mild cognitive impairment (an evidence-based review). Report of the Quality Standards Subcommittee of the American Academy of Neurology." *Neurology*. 2001 May 8;56(9):1133-42.

[42] Knopman, David S., et al. "Practice parameter: Diagnosis of dementia (an evidence-based review) Report of the Quality Standards Subcommittee of the American Academy of Neurology." *Neurology* 56.9 (2001): 1143-1153.

[43] Jack Jr, Clifford R., et al. "Revised criteria for diagnosis and staging of Alzheimer's disease: Alzheimer's Association Workgroup." *Alzheimer's & Dementia* 20.8 (2024): 5143-5169.

[44] Dubois, Bruno, et al. "Alzheimer disease as a clinical-biological construct—an International Working Group recommendation." *JAMA Neurology*. 2024 Dec 1;81(12):1304-1311.

related dementias.[45,46,47,48] In all of these guidelines which essentially guide practice worldwide for diagnosing cognitive impairment, CT perfusion is mentioned only once, and specifically in the context of diagnosing acute ischemic stroke.[49] While CTP may be of interest as a research tool based on a handful of small studies, it is clear that it has no place in standard clinical practice in evaluating persons with cognitive impairment. There is simply insufficient evidence to support the use of CTP in the diagnosis of persons with MCI or dementia. This is why CTP is not recommended in the diagnostic workup of persons such as Judge Newman. For the reasons explained above, there was no indication to even consider ordering a CTP for Judge Newman. Her CTP was unnecessary and is uninformative.

Individuals with concern for cognitive impairment increasingly undergo additional biomarker-based testing (including cerebrospinal fluid analyses or molecular PET imaging) to determine a reasonable likelihood of the biological basis of cognitive impairment when identified. No diagnostic criteria, including the criteria cited above, advocate for CT Perfusion being part of biomarker-based testing among persons with suspected cognitive impairment or dementia.

Dr. Filler stated that Dr. Reza Taheri found the CTP "as being completely normal." Those words do not appear in Dr. Taheri's report. Instead, there is a comment about the inclusion of automated software which is used to explore for potential differences or mismatches in blood perfusion when comparing one side of the brain to the other, but the software found no differences. Dr. Taheri provided no broader conclusion about the scan and no made no mention about impressions relative to memory or aging.

Dr. Filler states "Moreover, there is exceptionally high flow bilaterally in the hippocampus which rules out all of the known causes of MCI (mild cognitive impairment) and any dementias." I disagree with that conclusion, based on several errors made by Dr. Filler. First, as explained above, even if a CTP demonstrates present blood flow, that does not rule out cognitive impairment.

Second, Dr. Filler seems to have misread and mislabeled a key image of Judge Newman's CTP. At the beginning of Dr. Filler's report, he presents the image below with labels he has superimposed: "Red Colorization by i-RAPID IschemaView Analysis Showing High Focal Blood Flow In Right Hippocampal Region" and "High Focal Blood Flow In Left Hippocampal Region." In that figure, what he has labeled as hippocampal regions simply cannot be the hippocampal regions. That is because the hippocampus/hippocampal regions are several centimeters away from the area highlighted by Dr. Filler. It is anatomically not possible for the hippocampus to be where he says it is, and is not even visible on the image he shows. Instead, his arrow is pointing to very different areas of the brain called the insular cortex. It is also possible his arrows are pointing to an area adjacent to the insular cortex

[45] Grossman M et al. "Frontotemporal lobar degeneration." *Nat Rev Dis Primers.* 2023 Aug 10;9(1):40.
[46] McKeith IG et al. "Diagnosis and management of dementia with Lewy bodies: Fourth consensus report of the DLB Consortium." *Neurology*. 2017 Jul 4;89(1):88-100.
[47] Aarsland D et al. "Parkinson disease-associated cognitive impairment." *Nat Rev Dis Primers*. 2021 Jul 1;7(1):47.
[48] Sachdev et al. "Diagnostic criteria for vascular cognitive disorders: a VASCOG statement." *Alzheimer Dis Assoc Disord.* 2014 Jul-Sep;28(3):206-18.
[49] Sachdev et al.

called the superior temporal gyrus of the temporal lobe. Regardless, neither brain area includes the main hippocampal region. Below is the image included by Dr. Filler, along with a structural head CT reference image at approximately the same level.[50]

| Image provided by Dr. Filler (page 1 of his report) | Reference CT image at approximately the same level showing insula and not hippocampus |
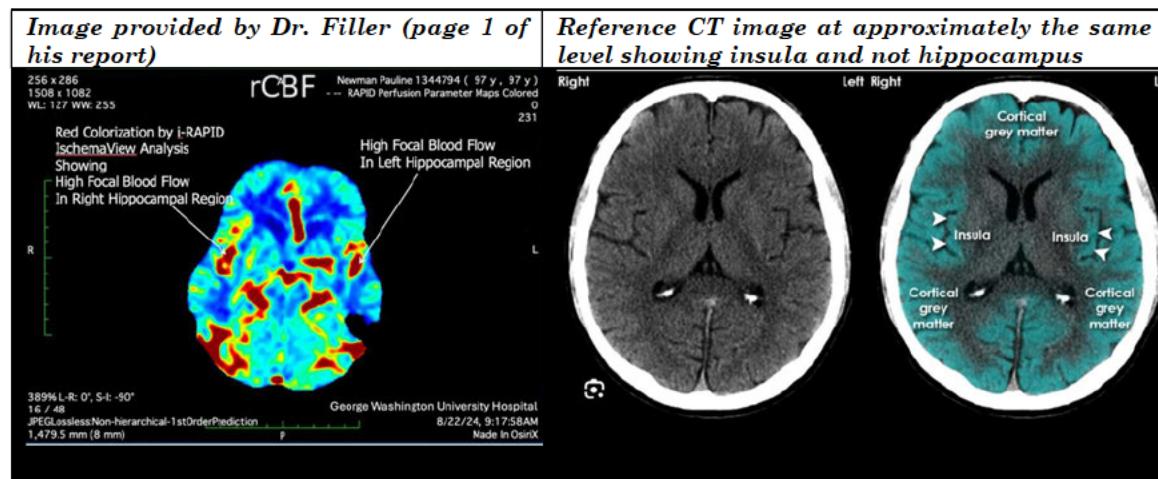
Third, in contrast to how Dr. Filler used the imaging software "i-RAPID IschemaView Analysis" (formally called "iSchema View Rapid"), the Food and Drug Administration (FDA) has only permitted the marketing and use of this CT Perfusion software for "physicians to aid in the selection of acute stroke patients (with known occlusion of the intracranial internal carotid artery or proximal middle cerebral artery)." There is no evidence that Dr. Filler was concerned that Judge Newman had experienced an ischemic stroke or occlusion of intracranial internal carotid artery or proximal middle cerebral artery. The FDA has not permitted the marketing or use of iSchema View Rapid software as a diagnostic tool for cognitive impairment or hippocampal function. Dr. Filler's use of the software in analyzing Judge Newman's CTP study to determine cognitive performance or hippocampal function is not appropriate based on FDA's clearly stated scope of marketing and use of the software.[51] It is recognized in medicine that physicians may use medications or apply studies in so-called "off-label" conditions, but the application of CTP to Judge Newman not only has no basis in FDA-approved uses, but also no established use of CTP or this software in clinical guidelines or standard practice to even potentially support an off-label use of CTP or this analytic software in her situation.

Dr. Filler's statement that Judge Newman's CTP results obviate any need for a neuropsychology test battery is incorrect. My review of the affidavits describing Judge Newman's progressive cognitive and behavioral changes demonstrate concerning changes which could be clarified through neuropsychological testing. Neuropsychological testing remains standard practice in clinical and research settings to determine the nature and extent of cognitive problems. Neuropsychological testing uses multiple standardized instruments, with known performance metrics across a wide array of persons from differing backgrounds. Adjustments are possible for age and education and provide an opportunity for comparing performance of an individual against their peers. Testing derives summary

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[50] Radiology Masterclass, accessed 1/22/2025
https://www.radiologymasterclass.co.uk/tutorials/ct/ct_brain_anatomy/ct_brain_anatomy_grey_matter
[51] Response to iSchema View Inc's 510(k) submission by the FDA, March 15, 2022.
https://www.accessdata.fda.gov/cdrh_docs/pdf21/K213165.pdf

assessments of working and long-term memory, including verbal and non-verbal recall, language abilities, executive function, visuospatial performance, and processing speed, all of which are adjusted for age and education history. Further, formal assessments of mood and behavior can provide insights into behavioral aspects which often coincide with cognitive decline. Neuropsychologist Dr. Yaakov Stern, whose research has been cited more than 150,000 times, writes in his chapter in the *Merritt's Neurology* textbook:[52]

> "Neuropsychological testing can assist in the diagnosis of dementia, in evaluating or quantifying cognition and behavior in development, brain diseases, and clinical treatment. It is also incorporated into research that evaluates cognitive functions in healthy and diseased individuals.
>
> Conditions that affect the brain often cause cognitive, motor, or behavioral impairment that can be detected by appropriately designed tests. Defective performance on a test and certain patterns of test performance may suggest specific pathology. Alternatively, patients with known brain changes may be assessed to determine how the damaged brain areas affect specific cognitive functions. Before relating test performance to brain dysfunction, however, other factors that affect test performance must be considered.
>
> Typically, test performance is compared with normative values derived from populations similar to the patient in age, education, socioeconomic background, and other variables. Scores significantly below the mean expected values imply impaired performance. Performance sometimes can be evaluated by assumptions about what might be expected from the average person (eg, repeating simple sentences or simple learning and remembering)."

Finally, Dr. Filler summarizes 2,000 pages of prior medical records which were not separately provided. In that review, Dr. Filler did not focus on several important medical problems, each of which could contribute to cognitive impairment. These include a history of ███ ██████████████████████████. It is known that poor ██████ function can cause confusion and this should have been explored further by Dr. Filler. Several medications in her history have known cognitive side effects including ███████████████████████. These conditions and the use of these medications should have prompted Dr. Filler to explore their impact on cognitive function. Because these records were not provided directly for my review, I am unable to determine further if these may be contributing factors.

IV. *Evaluative summary*

Based on the information I have reviewed, particularly because of the observed decline included in the affidavits, combined with the low MoCA performance, it is my professional opinion that neuropsychological testing for Judge Newman is warranted.

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[52] Stern Y. Chapter 31: Neuropsychological Evaluation. *In: Merritt's Neurology 14th Edition* (Eds. Louis, Mayer, and Noble, Wolters-Kluwer, 2021)

As explained, a diagnosis of MCI or dementia cannot be made on the basis of neuroimaging alone. Instead, a diagnosis of MCI and dementia is made based on clinical history and examination, often in advance of additional diagnostic testing.

As was done with Dr. Carney's evaluation, a commonly used instrument, and one I have used thousands of times in my practice, is the clinical dementia rating scale (CDR).[53] The assessment applies best information to 6 key areas including memory, orientation, judgement and problem solving, community affairs, home and hobbies, and personal care. A summary impression is derived through an established, highly validated algorithm which provides a reasonable likelihood that someone is normal, experiencing MCI, or has dementia. Accurate derivation requires completion of formal training which I have done. Several scores are derived including a sum of boxes and an overall score, the latter of which requires application of the CDR algorithm/calculator available online through the National Alzheimer Coordinating Center.[54] Aside from its use as a standard outcome in dementia treatment trials and research, it is part of a reporting requirement for cognitive assessments as determined by CMS[55] for persons being considered for Alzheimer monoclonal antibody treatments, as well as entering into the CMS Guiding an Improved Dementia Experience (GUIDE) Model.[56]

As noted above, I have not personally interviewed or examined Judge Newman, but taking all evidence into account, it is possible to construct a CDR for her as could have been done at each evaluation. Taking this approach, CDR domain, summary, and global scores can be reasonably determined as shown in Figure. In this figure I have circled in red what should have been selected.

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[53] Burke WJ et al. "Reliability of the Washington University Clinical Dementia Rating." *Arch Neurol.* 1988 Jan;45(1):31-2. doi: 10.1001/archneur.1988.00520250037015.

[54] CDR Dementia Staging Instrument Calculator

https://naccdata.org/data-collection/tools-calculators/cdr

[55] Monoclonal Antibodies Directed Against Amyloid for the Treatment of Alzheimer's Disease CED Study Registry

https://qualitynet.cms.gov/alzheimers-ced-registry

[56] CMS.gov GUIDE Model Frequently Asked Questions

https://www.cms.gov/priorities/innovation/guide/faqs

| Please enter score below:	IMPAIRMENT				
	None — 0	Questionable — 0.5	Mild — 1	Moderate — 2	Severe — 3
1. Memory 0.5	No memory loss, or slight inconsistent forgetfulness	Consistent slight forgetfulness; partial recollection of events; "benign" forgetfulness	Moderate memory loss, more marked for recent events; defect interferes with everyday activities	Severe memory loss; only highly learned material retained; new material rapidly lost	Severe memory loss; only fragments remain
2. Orientation 0.0	Fully oriented	Fully oriented except for slight difficulty with time relationships	Moderate difficulty with time relationships; oriented for place at examination; may have geographic disorientation elsewhere	Severe difficulty with time relationships; usually disoriented to time, often to place	Oriented to person only
3. Judgment and problem solving 0.5	Solves everyday problems, handles business and financial affairs well; judgment good in relation to past performance	Slight impairment in solving problems, similarities, and differences	Moderate difficulty in handling problems, similarities, and differences; social judgment usually maintained	Severely impaired in handling problems, similarities, and differences; social judgment usually impaired	Unable to make judgments or solve problems
4. Community affairs 0.0	Independent function at usual level in job, shopping, volunteer and social groups	Slight impairment in these activities	Unable to function independently at these activities, although may still be engaged in some; appears normal to casual inspection	No pretense of independent function outside the home; appears well enough to be taken to functions outside the family home	No pretense of independent function outside the home; appears too ill to be taken to functions outside the family home
5. Home and hobbies 0.0	Life at home, hobbies, and intellectual interests well maintained	Life at home, hobbies, and intellectual interests slightly impaired	Mild but definite impairment of function at home; more difficult chores abandoned; more complicated hobbies and interests abandoned	Only simple chores preserved; very restricted interests, poorly maintained	No significant function in the home
6. Personal care 0.0		Fully capable of self-care (= 0).	Needs prompting	Requires assistance in dressing, hygiene, keeping of personal effects	Requires much help with personal care; frequent incontinence
7. 1.0	CDR SUM OF BOXES				
8. 0.5	GLOBAL CDR				

With respect to memory, there is strong evidence in the history and on the MoCA examination that demonstrates changes in memory at least at the *0.5* level ("consistent slight forgetfulness; partial recollection of events; "benign" forgetfulness") and potentially at the *1* level ("moderate memory loss, more marked for recent events; defect interferes with everyday activities"). There is also strong evidence based on observations at work that her judgement and problem solving is also at least questionable or *0.5* ("slight impairment solving problems, similarities, differences"). There is no evidence in the materials I have reviewed of impairment in the other domains (orientation, community affairs, home and hobbies, and personal care). However, there is inadequate information to make a determination about her level of independence with regard to community affairs, home and hobbies, or personal care. Despite this missing information, there remains a significant concern about her cognitive abilities. Even assuming no impairment in those other domains, and just taking into account the memory and judgement and problem solving, the CDR sum of boxes is 1.0 and her global CDR is calculated to be 0.5. These scores further support that the correct diagnosis should have been MCI.

A standard diagnostic workup plan for persons with presumed or possible MCI is to pursue neuropsychological testing which may confirm or refute points above, especially when done in conjunction with other tests such as structural brain imaging (MRI or CT; noting again that a structural CT is distinct from a Perfusion CT) along with additional biomarker diagnostic tools including amyloid-PET and CSF sampling.[57] Judge Newman never had any of these tests. Neuropsychological testing would also be the best tool to inform the likelihood that she would be able to perform her job as a judge.

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[57] Honig LS, Salardini A, Kreisl WC, and Noble JM. Chapter 50: "Mild Cognitive Impairment." *In: Merritt's Neurology 14th Edition* (Eds. Louis, Mayer, and Noble, Wolters-Kluwer, 2021)

CONCLUSIONS

Taken together, there is clear evidence that Judge Newman forgot major events at work, had clear difficulty understanding complex situations at her job, and demonstrated meaningful impairments on both the MoCA and 3MS. In my professional opinion, based on the information that is available, in the standard of practice it cannot be said that her cognition is normal. A diagnostic workup including neuropsychological testing should have been recommended.

James M. Noble, MD, MS, CPH, FAAN

January 30, 2025

Appendix of Materials Analyzed

Materials Submitted by Judge Newman

Title
Declaration of Ted L. Rothstein, M.D.*
Report of Independent Medical Examination of Pauline Newman by Regina M. Carney, M.D.*
24-9-17 Affidavit of Aaron G Filler re Hon. Pauline Newman
Newman_Pauline 8-24-2024 Evaluation Report with Exhibits
2024-8-24 Newman_Pauline Eval from OneNote
2024-8-24 Newman_Pauline Exam from OneNote
GW Report on Perfusion CT
Perfusion CT Scans hyperlinked to Judge Newman's Response to Special Committee's Order of October 21, 2024
Motion to Reconsider 09.25.24 Final

* includes exhibits.

Index of Materials Gathered By the Special Committee

Orders:

- September 20, 2023 Judicial Council Order (PUBLIC)
- September 6, 2024 Order (PUBLIC)

Title
Affidavit of ██████████
Affidavit of ████████ – April 2023
Affidavit of ████████ – May 2023
Affidavit of ██████████████
Affidavit of ███████████ *
Declaration of █████████████ **
Affidavit of █████████████ **
Affidavit of ██████████ *
Affidavit of ████████████
Affidavit of ██████████
Affidavit of ██████████
Affidavit of ██████████
Affidavit of ████████████
Affidavit of ██████████
Exhibit 1 (Email from Chief Judge Moore re █████████)
Exhibit 2 (Email from Judge Newman to Chief Judge Moore re ██████████)
Exhibit 3 (Email from Judge Newman to Chief Judge Moore re Support Services)
Exhibit 4 (Email exchange between Judge Newman to Chief Judge Moore re JA/law clerk positions)
Exhibit 5 (Email exchange between ██████████ and Judge Newman)

Exhibit 6 (Email from Judge Newman to Chief Judge Moore re return of her chambers computer)
Exhibit 7 (Email exchange between ███████ and █████████ re April 2023 Court Week)

* includes email exhibits.

** includes docket exhibits.

CURRICULUM VITAE
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Date of Preparation: January 28, 2025

Name: James M. Noble, MD, MS, CPH, FAAN
Place of Birth: Atlanta, GA
Date of Birth: June 19, 1976
Citizenship: USA

Academic Appointments, Hospital Appointments, and Other Work Experience

12/2024-present	**Columbia University Irving Medical Center** Professor of Neurology (in the Taub Institute & the Sergievsky Center) at CUMC	New York, NY
01/2020-present	**Columbia University Irving Medical Center** Clinical Core Leader, Alzheimer Disease Research Center	New York, NY
07/2018-11/2024	**Columbia University Irving Medical Center** Associate Professor of Neurology (in the Taub Institute & the Sergievsky Center) at CUMC	New York, NY
05/2011-present	**Arts & Minds, Inc. (501c3) artsandminds.org** President and Co-Founder (Volunteer position) Museum-based visual arts programs for dementia patients & caregivers	New York, NY
07/2008 - 6/2018	**Columbia University Irving Medical Center** Assistant Professor of Neurology (in the Taub Institute & the Sergievsky Center) at CUMC	New York, NY
07/2009-12/2016	**Columbia University College of Physicians & Surgeons** Neurology Clerkship Director	New York, NY

07/2007- 06/2011	**Harlem Hospital Center** Assistant Attending Neurologist	New York, NY

Education

08/2006- 05/2008	**Columbia University** **Mailman School of Public Health** Master of Science, Epidemiology, May 2008	New York, NY
08/1998- 05/2002	**Emory University School of Medicine** MD, May 2002	Atlanta, GA
08/1994- 05/1998	**Vanderbilt University** Bachelor of Science, Math and Chemistry, May 1998 *magna cum laude*	Nashville, TN

Training

07/2006- 06/2008	**Columbia University Medical Center** **Department of Neurology & G. H. Sergievsky Center** Fellowship, Aging and Dementia & Neuroepidemiology	New York, NY
07/2005- 06/2006	**Columbia University Medical Center** **Department of Neurology** Neurology Co-Chief Resident	New York, NY
07/2003- 06/2006	**Columbia University Medical Center** **Department of Neurology** Neurology Residency	New York, NY
06/2002- 06/2003	**Columbia-Presbyterian Medical Center** **Department of Medicine** Internal Medicine Preliminary Internship	New York, NY

Gaps in work/training/education:

N/A

Licensure and Board Certification

10/2008- 1/2026	**National Board of Public Health Examiners (NBPHE)** Certification in Public Health (CPH) #20070713279	
11/2008- 11/2028	**United Council for Neurologic Subspecialties (UCNS)** Behavioral Neurology and Neuropsychiatry	

Curriculum Vitae
James McCallum Noble, MD MS CPH

#BNNP00326-08

| 05/2007-
12/2027 | **American Board of Psychiatry and Neurology (ABPN)**
Neurology
#54098 | |

| 05/2004-
Present | **New York State Education Department, Office of Professions**
Medical License #232438 | New York |

Honors & Awards

| 9/2024 | **Columbia University Irving Medical Center**
Richard Mayeux Award (5th recipient) |

| 1/2024-
present | **Columbia University Irving Medical Center**
Academy of Community and Public Service |

| 3/2021 | **American Academy of Neurology**
2021 A.B. Baker Teacher Recognition Award |

| 9/2018 | **Mailman School of Public Health Alumni Association**
Outstanding Recent Alumni Award |

| 4/2018-
present | **American Academy of Neurology**
Fellow |

| 11/2012-
Present | **Columbia University, College of Physicians and Surgeons**
Virginia Apgar Teaching Academy |

| 9/2012-
06/2013 | **American Academy of Neurology**
Selection, Emerging Leaders Forum 2012-2013 (Inaugural year) |

| 6/2011 | **Department of Neurology, Columbia University Medical Center**
Stephen Q. Shafer Award for Humanism in Neurology |

| 5/2008 | **Columbia University, Mailman School of Public Health**
Anna C. Gelman Award for Excellence in Epidemiology |

Academic Service

| 11/2024 | **National Institutes of Health**
NV-C(10) Small Business Review Panel
Reviewer/Committee Member |

11/2024	**National Institutes of Health**
	NIH Special Emphasis Panel ZAG1 ZIJ-S (J1) – (NIA T35 program review)
	Reviewer/Committee Member

10/2024	**National Institutes of Health**
	NIH Special Emphasis Panel R25: Postbaccalaureate and Summer Research Education
	Reviewer/Committee Member

3/2024	**National Health and Medical Research Council**
	(Australian Federal Government)
	Medical Research Future Fund TBI Stream 1 & 2 Invited Panel Reviewer

7/2023-present	**National Institutes of Health**
	NIH Special Emphasis Panel (F31 predoc, F32 postdoc, F31 diversity predoc, F30 dual degree, R36 dissertation grants) ZRG1 F18-E (20) L
	Reviewer/Committee Member, annual/semi-annual/ad hoc

| 9/2022-8/2024 | **Study Safety Officer** |
| | R01AG060929 (PI: Yoon): Using Twitter to Enhance the Social Support of Hispanic and Black Dementia Caregivers (Tweet-SS) |

| 9/2019-present | **College of Physicians & Surgeons** |
| | Interviewer, Admissions Committee |

| 9/2018-present | **Big Ten–Ivy League Traumatic Brain Injury Research Collaboration** |
| | Member (Ivy League Representative), Study Advisory Committee |

| 07/2017-present | **College of Physicians & Surgeons** |
| | Associate Director, Preclinical Neuroscience Course |

| 3/2017-7/2019 | **American Academy of Neurology** |
| | Leader, Undergraduate Education Subcommittee Scholarship/Award Review Workgroup |

| 11/2016-6/2017 | **College of Physicians & Surgeons** |
| | Member, Liaison Committee on Medical Education (LCME), Committee on Education |

10/2016-present	**Brain Injury Association of New York**
	New York State Concussion Initiative Advisory Committee
	Member

9/2016- 1/2018	**Columbia University College of Physicians and Surgeons** Neural Science Curriculum Task Force (in advance of co-director of new course beginning 1/2018)
12/2014- 02/2016	**Institute of Medicine/National Academy of Medicine** Committee Member, *Gulf War & Health Volume 10: Update of Health Effects of Serving in the Gulf War*
10/2014- present	**National Institutes of Health** NIA Special Emphasis Panel (T32/T35 Training Grants) ZAG1 ZIJ-1 (J1)/ ZAG1 ZIJ-U (J4) Reviewer/Committee Member, annual/semi-annual/ad hoc
09/2014- 06/2017	**AAMC (Association of American Medical Colleges)**, Core Entrustable Professional Activities (EPAs) for Entering Residency Pilot Cohort Member, Columbia University's P&S 4-member working group
08/2014- 11/2014	**American Academy of Neurology** Reviewer for 2015 Annual Meeting Research Methodology, Education, and History abstracts
08/2014- 07/2018	**Big 10-Ivy League Conference** Chair, Funding Subcommittee (sunsetted 7/2018)
07/2014- 01/2015	**Columbia University College of Physicians and Surgeons** Clinical Performance Evaluation task force meeting *Chair*
9/2013- 10/2013	**American Museum of Natural History, New York, NY** Co-Chair: "Sackler Brain Bench: Neuroscience of Sports: Your Brain in Action"
7/2013	**French National Research Agency (ANR)/ General Directorate for Healthcare Provision** Programme de Recherche Translationnelle en Santé (PRTS) Invited Grant reviewer
04/2013- present	**American Academy of Neurology** Reviewer, Preclinical Summer Research Program
2013-2018	**American Academy of Neurology** Member, Undergraduate Education Subcommittee
01/2013- present	**New York State Athletics Commission**

Curriculum Vitae
James McCallum Noble, MD MS CPH

Member, Medical Advisory Board (supervises professional combat sports-boxing and MMA statewide)

11/2012-06/2013	**New York-Presbyterian Hospital** Primary Care Clinical Initiative *Working Group Member*
07/2012-2019	**Big 10-Ivy League Conference** **Committee on Institutional Cooperation (CIC)/Big 10 Academic Alliance** Concussion Research Collaborative Member, working group member of education and data subcommittees
04-07/2012, 2016	**Columbia University Medical Center, Department of Neurology** Compensation Program Committee *Working Group Member*
09/2011	**National Medical Research Council, Ministry of Health, Singapore** Clinician Scientist Grant Review
07/2011-12/2016	**Columbia University Medical Center, Department of Neurology** Education Committee *Member*
06/2011-12/2016	**Columbia University Medical Center, Department of Neurology** Executive Committee *Member*
08/2011-Present	**Columbia University Medical Center** Team Concussion, Department of Neurology *Director*
02/2011-05/2012	**Columbia University College of Physicians and Surgeons** Task Force on Honor Code *Member & Co-Author of New P&S Honor Code Implemented 8/2012*
01/2010-Present	**Columbia University Medical Center & Harlem Hospital Center** Hip Hop Public Health Center *Co-Chair of Research*
10/2009-07/2015	**Columbia University College of Physicians and Surgeons** Major Clinical Year Evaluation Subcommittee *Voting member*

07/2009- 12/2016	**Columbia University College of Physicians and Surgeons** Major Clinical Year Committee Member
07/2009- 12/2016	**Columbia University College of Physicians and Surgeons** Clinical Faculty Committee Voting Member
10/2008- present	**Columbia University, Department of Neurology** Residency Applicant Interview Committee
02/2009- 12/2010	**Harlem Hospital Center, Department of Neurology** Neurology Clinics *Chief*
07/2008- 12/2010	**Harlem Hospital Center, Department of Neurology** Performance Improvement Committee *Chairman*
08/2007- 12/2007	**Columbia University** Mind Brain Behavior Building Clinical Programming Committee *Member*

Professional Organizations and Societies

Memberships and Positions

1/2001-present	**American Academy of Neurology** Member

Consultative

10/2017-10/2023	**NoMo Diagnostics (nomodx.com)** Co-Founder and Chief Medical Advisor
11/2016-present	**New York Football Giants (NFL)** Independent Neurological Consultant (official position jointly approved by NFL and NFL Players Association)
8/2016-8/2018	**Prophase LLC (AD Trials secondary reviewer)**
9/2015-present	**Bats Toi-Mercado** Wrestling Headgear
7/2011	**The Cloisters Museum:** Sights & Scents Program for Dementia Patients & Caregivers

Journal Reviewer

(1st year encountered)	Journal Name
2023	Neuroepidemiology
2022	Journal of the American College of Cardiology
2022	Journal of Alzheimer's Disease
2018	Journal of Alzheimer's Disease Reports
2018	Journal of Research in Childhood Education
2018	Journal of Adolescent Health
2018	Alzheimer Disease & Associated Disorders - An International Journal
2018	Clinical Biomechanics
2018	Journal of Clinical Periodontology
2018	Journal of Periodontology
2017	BMJ Open
2017	Sports
2017	Neuroscience Letters
2017	Developmental Neuropsychology
2016	American Journal of Cardiology
2016	British Journal of Sports Medicine
2016	Patient Education and Counseling
2015	JAMA Neurology
2015	Canadian Geriatrics Journal
2015	Pediatrics
2015	The Physician and Sportsmedicine
2015	BMC Neurology
2015	Journal of Athletic Enhancement
2015	BMC Research Notes
2014	Journal of Science and Medicine in Sport
2014	Journal of Neurotrauma
2014	American Journal of Epidemiology
2014	PLoS One
2014	Neurobiology of Aging
2013	The Medical Letter
2013	Health Education & Behavior
2012	Journal of Clinical Periodontitis
2012	Journal of the American Geriatrics Society
2011	Journal of the International Neuropsychological Society
2011	European Journal of Neurology
2011	Journal of Pediatric Neurology
2010	American Journal of Public Health
2010	Journal of Neurological Sciences
2009	Neurology

2009	Journal of Neurology, Neurosurgery, and Psychiatry
2009	Alzheimer's & Dementia: The Journal of the Alzheimer's Association
2009	European Journal of Clinical Nutrition

Editorial Board

| 2023 | Editorial Board, Journal of Clinical Periodontology (IF=6.7) |
| 2018 | Associate Editor, Journal of Alzheimer's Disease (IF=4.0) |

Fellowship and Grant Support
Present Support

DATES	TITLE	ROLE	DIRECT	SOURCE
9/2024-present	R56AG082167 Multi-morbidity 3-City Alzheimer's Disease EHR Study (M3AD Study)	Co-I (PI: Desvarieux)	**3.87M**	NIA
6/2024-present	R01AG087496 Statistical Framework for Unraveling Age-Dependent Genetic Landscape of Alzheimer's Disease and Related Dementias: Harnessing Large-Scale EHR and DNA-Biobank Integration	Co-I (PI: Wei)	**481,558 (Y1)**	NIA
10/2022-present	R01 AG075083, Early Age-Related Hearing Loss Investigation (EARHLI): A Randomized Controlled Trial to Assess Mechanisms Linking Early Age-Related Hearing Loss and Alzheimer's Disease and Related Dementias	Co-I (PI: Golub)	**705,397 (Y1)**	NIA
9/2022-present	U19 AG078558 Alzheimer's Disease and Alzheimer's Disease Related Dementias in Prediabetes and Type 2 Diabetes: The Diabetes Prevention Program Outcomes Study AD/ADRD Project (DPPOS)	Core Leader (PI: Luchsinger)	**255,178 (Y1)**	NIA
7/2022-present	R01 AG063888, Longitudinal imaging of microglial activation in different clinical variants of Alzheimer's disease	Co-I (PI: Small)	**673,866 (Y3)**	NIA
09/2021-present	R01 AG076015, A Longitudinal Study of Periodontal Infections and Alzheimer's	PI	**$2.5M**	NIA

Disease: The WHICAP Ancillary Study of
Oral Health.

9/2020- PRESENT	3P30AG066462-01S1 ADRC administrative supplement. Determinants of health seeking behaviors during COVID-19 in persons with MCI/ADRD and their caregivers.	PI (ADRC PI: Small)	**$153,635**	NIA
6/2020- 4/2025	P30AG066462 ADRC Clinical Core	PI	**$3M**	NIA
05/2013- 04/2028	T35 AG044303 The BRAIN (Brief Research in Aging and Interdisciplinary Neurosciences) Project *Citations: 2102, h-index 25, i-index 46, m-index 2.8 (using 2014 as index year)*	PI/Founding Co- Director	**$1.7M**	NIA

Past Support

8/2020- 11/2022	1R21AG065753-01A1 Nurse's Documentation of Patient Diagnoses, Symptoms and Interventions For Home Care Patients with Alzheimer's Disease and Related Dementias: A Natural Language Processing Study	Co-I (PI Ryvicker)	**$157,642**	NIA
9/2018- 8/2023	R01 NR017571 Effect of an integrated nutrition-math curriculum to improve food-purchasing behavior of children has completed the first phase of peer review.	Co-I (PI Williams)	**$2M**	NINR
09/2019 – 08/2022	GRANT12727289 Peer Reviewed Alzheimer's Research Program Convergence Science Research Award: Optogenetic Regulation of Phosphoinositide Metabolism in Susceptibility, Resistance, and Resiliency to Alzheimer's Disease— Associated Deficits and Pathology	Co-I (PI McIntire)	**$1.5M**	DoD

9/2017-8/2023	R01AG054536 Old School Hip Hop	PI	**$2.7M**	NIA
9/2017-8/2019	R56 DE026487-01A1 A combined genetic/epigenetic approach to study periodontitis susceptibility and pathobiology	Co-I (PI Papapanou)	**$156K**	NIDCR
9/2017-8/2018	R56 AG056347-01 (Merrill and Ryvicker) A Longitudinal Network Study of Alzheimer's and Dementia Care in Relation to Disparities in Access and Outcomes	Co-I	**$572K**	NIA
4/2016-2/2023	R01 NS067443 06-10 (PI Williams) Hip Hop Stroke Statewide Dissemination	Co-I	**$2.7M**	NINDS
07/2015-09/2017	Columbia Coulter Program TEAM Helmet (Transmitted Electroencephalogram Activity Monitoring)	Co-PI	**$53K**	CU
10/2015-12/2017	Brain MRI in Contact Sports	PI	**$10K**	Taub
09/2014-08/2019	U54 NS081765 (PIs: Ogedegbe and Williams) Center for Stroke Disparities Solutions	Co-I	**$1.6M**	NINDS
10/2013-08/2016	R56 DE022568 WHICAP-PERIoD: Periodontitis Exposure and Risk of Incident Dementia	PI Administrative PI	**$1M**	NIDCR
01/2012-03/2014	*Assessing efficiency of learning the neurologic exam with a visual tracking device*	PI	**$9K**	AAN, CU
2/2011-11/2024	U19 AG032438 Dominantly Inherited Alzheimer Network-Observational Study	Site PI (10/2016-11/2024) (PI Bateman)		NIA

Curriculum Vitae
James McCallum Noble, MD MS CPH

12/2010-11/2015	R01 NS067443 01-05 (PI O. Williams) Hip Hop Stroke RCT	Co-I	**$3.4M**	NINDS
03/2010-03/2011	*Serologic antibodies to periodontal pathogens in incident AD and matched controls*	PI	**$25K**	Taub
05/2009-12/2010	*A Renaissance of the Mind: Healing Memories with Art in Central Harlem*	PI	**$11K**	Private
7/2008-5/2020	P50 AG008702 Columbia University ADRC	Co-I (clinical core)		NIA
06/2008-12/2010	New Investigator Research Grant *Arteriosclerosis and Alzheimer disease in a multiethnic cohort of autopsy brains.*	PI	**$87K**	Alz. Assn
07/2006-06/2008	T32 NS07153 Public Health Service training grant	Fellowship		NINDS
07/2006-06/2008	Charles L. and Anne L. Saunders Brown Fellowship	Fellowship		Private
04/2006	58th Annual Meeting Resident Scholarship *To* present *Stroke Associated with Cocaine Abuse: No Longer Just a Problem of the Young*	Co-I		AAN
09/2005	130th Annual Meeting Travel Scholarship To Present *Recombinant Tissue Plasminogen Activator (rtPA) for Acute Ischemic Stroke among African Americans in Central Harlem*	Co-I		ANA
07/2005-06/2006	5 T32 NS007155-25 Public Health Service Grant (Residency Research Support)	Co-I		NINDS

Educational Contributions

Direct Teaching/Precepting/Supervising

	Specific Courses (All at Columbia University)	Annual Enrollment:
07/2017-present	MEDIM5108 The Body in Health & Disease (Preclinical Neuroscience Course) Co-Director, Co-developed new curriculum	170
09/2015-2020	BMEN 3910 Senior Design Class Biomedical Engineering Clinician Lecturer	35
09/2014-present	MEDIM6107 (P&S) The Body in Health & Disease Team & Problem-based learning Neuroscience cases	25
5/2012-2015	Art Matters: An Evening for Medical Students at the Frick Lecturer	25
08/2011-2016	CPMDN04P0 (P&S) Clinical Practice-IV	170
4/2011, 10/2017	The Cognitive Neuroscience of Aging (PSYCH G4222) Lecturer	20
07/2009-12/2016	NEURM 7201003 (P&S) Neurology clerkship (as Clerkship Director)	170
07/2009-3/2016	Neurology Subinternships Director (NU1P, NU01P)	12
03/2009-Present	P9493 Neuroepidemiology	15
07/2008-present	**Columbia University Irving Medical Center** Neurology Resident Inpatient/Outpatient Supervision	30
08/2007-06/2011	**Harlem Hospital Center** Inpatient Service, Consult, Outpatient Attending	35
1995-1997	**Vanderbilt University** Vanderbilt Student Volunteers for Science	30

Advising and Mentorship

9/2024-present	**Matt Johnson, MD candidate, Columbia University Vagelos College of Physicians & Surgeons**
	Matt is pursuing 4th year research (as his scholarly project) aiming to determine an automated way of collecting data on repetitive head impacts from publicly available sports databases comparing with athlete self-report.

5/2024-present	**Jack Riley, MD candidate, Columbia University Vagelos College of Physicians & Surgeons**
	Jack participated in the BRAIN T35 program in summer 2024, exploring adolescent knowledge and attitudes as part of the Adolescents Caring for Community by Promoting Literacy on Insurance, Stroke, Health Education, Emergencies, and Dementia (ACComPLISHED, see Paul Lewis below)

10/2023-present	**Bluye DeMessie, MD/PhD Candidate, Albert Einstein College of Medicine Neuroscience Department**
	I have served as a thesis advisor (PI Michael Lipton, CUIMC Neuroradiology)

9/2023-present	**Steffany Chamut DDS (Instructor in Oral Health Policy and Epidemiology Institution, Harvard School of Dental Medicine)**
	Providing mentorship on Dr. Chamut's K01 application exploring the crossroads of oral health and cognitive impairment.

9/2023-present	**Paul Lewis (medical student, VP&S)**
	Mentoring Paul on development and implementation of ACComPLISHED, a community health worker program for high school students, with initial program in Winter 2024, and in Fall 2024 entered its 3rd iteration, numbering > 700 trainees.

8/2023-present	**Sarah Frances (Mailman MPH Candidate)**
	Mentoring Sarah on several projects aimed at exploring social determinants of health involving concussion care.

8/2022-6/2024	**Ndubisi Mark Chikwem MD (as a Behavioral Neurology Fellow)**
	Provided mentorship to Mark whose master's thesis involves exploring risk of incident dementia among those with epilepsy, as well as the reverse relationship, using the National Alzheimer's Coordinating Center database. Dr. Chikwem is now Assistant Professor of Neurology at CUIMC.

6/2023-8/2023	**Robyn McDaniel (Meharry MPH Candidate)**
	Co-mentored Robyn (with Dr. Jennifer Manly) as a visiting scholar from Meharry Medical College. Robyn's abstract "Investigating the Impact of Oral Hygiene Behaviors and Subjective Oral Health on Cognitive Aging and Well-being in Diverse Aging Populations" was accepted as a poster presentation for

the Annual Biomedical Research Conference for Minoritized Scientists (ABRCMS), November 2023

4/2022-5/2024	**Melissa Mendelson (as PhD Candidate, Columbia University)** Advised Melissa as subject matter expert on dementia as well as how families may access needs and support information by the internet. Dr. Mendelson successfully defended her thesis.
2/2022-present	**Maryam Zolnoori, PhD, as post-doctoral trainee and Assistant Professor** Provided mentorship on several projects led by Maryam leading to her K99/R00 phase. She is developing an impressive trajectory focusing on natural language processing in identifying persons with Alzheimer's disease and related dementias.
5/2022-8/2022	**Johnathan Bailey (medical student, VP&S)** Mentored Johnathan on a study of natural language processing
5/2022-8/2023	**Paul Kim (student, Columbia University post-bac program)** Mentoring Paul on a project developing a Korean-language version of Old School Hip Hop
5/2022-present	**Mark Gettas (student, Columbia College of Dental Medicine)** Mentoring Mark on a project exploring objective evidence versus subjective perceptions of periodontal disease
6/2021-present	**Arielle Lehman MD (as neurology resident)** Mentoring Arielle on several projects involving sports-related concussion
1/2021-5/2024	**Ari Margolies (as Teacher's College Master's student)** Mentoring Ari on a project exploring COVID-associated impacts on collegiate athlete experiences, including premature retirement
1/2020-7/2021	**Janhavi Malliah EdD (as Teacher's College doctoral student)** Janhavi developed a simplified stroke knowledge assessment tool for use among minority community health workers including the Columbia InTOuCH program. She is the senior program coordinator for InTOuCH and related programs.
8/2020-9/2021	**Anna Nordvig MD (as Aging and Dementia Fellow at CUIMC)** Anna successfully competed for an ADRC Development award, and will be studying the impact of COVID on neurodegenerative plasma biomarkers. Dr. Nordvig is Assistant Professor of Neurology at NYP-Cornell, and focuses on dementia and post-COVID syndrome.

6/2020- 6/2024	**Angela Ward, RDH, EdD** Dr. Ward Assistant Professor of Hygiene Sciences (in Dental Medicine) at CUMC and was an inaugural ADRC REC scholar, 2020-23. Her capstone project anticipates submission to a journal soon. She retired from the University in 2024.
6/2020- 5/2021	**Amro Harb (as 1st year medical student, VP&S) 2020 BRAIN T35 trainee** Amro researched risk factors for adverse outcomes in persons aged 65y and over presenting with COVID-19 to CUIMC 4/2020-5/2020. A manuscript was published in *JAD* May 2021. Co-mentored with Karthik Natarajan.
6/2019- 2022	**Lucy Colville MD (as 1st year medical student, P&S), 2019 BRAIN T35 trainee** Lucy has assessed knowledge, attitudes and behaviors around advance care planning in the Columbia InTOuCH community health worker program and is developing a related workshop likely to be implemented in Fall 2019. An abstract was submitted in 12/2019 for consideration at the 2020 annual meeting of the American Geriatrics Society. She began residency in pediatrics in 2022 at the University of Washington.
6/2019- 2022	**Jalen Dansby MD (as 1st year medical student, P&S) 2019 BRAIN T35 trainee** Jalen was the first to explore a registry of more than 400 concussion patients presenting to the sports medicine practice 2017-present, exploring for patterns of care use. Jalen was co-mentored by Dr. Thomas Bottiglieri of sports medicine. Jalen began orthopedics residency at Cedars Sinai Medical Center in 2022.
6/2019- 2022	**Alice Daramola, MPH (as 1st year medical student, P&S), 2019 BRAIN T35 trainee** In a follow-up study to Eric Morris (see below), Alice used the New York SPARCS dataset to explore emergency care use patterns across the lifespan for concussion relative to socioeconomic indicators including race-ethnicity, income, and insurance status, as well as by New York geographic region. A manuscript is in preparation. Alice was co-mentored by Dr. Amelia Boehme.
12/2018- 6/2019	**Eric Morris (as 2nd year MPH student, Columbia)** For his MPH project/thesis, Eric used the New York SPARCS dataset to explore emergency care use patterns among adolescents presenting with concussion including sports-related concussion, relative to socioeconomic indicators including race-ethnicity, income, and insurance status, as well as by New York geographic region. A manuscript is in preparation. Eric was co-mentored by Dr. Amelia Boehme. He is now based in San Francisco, working as a Healthcare Analyst at Analysis Group.

11/2018-
present

Nathan D'Cunha (PhD Student, University of Canberra)
Nathan is interested in demonstrating physiological biomarkers of neuropsychiatric symptoms of dementia in both patients and their caregivers, and the potential impact of community based arts programs in altering their trajectory. In 2019, Nathan applied for National Health and Medical Research Council Ideas Grant (Federal, Australia) as well as Fulbright scholarship to work directly with me in NYC for a year. Both are being prepared for resubmission.

7/2017-
present

Thomas Bottiglieri, DO
Dr. Bottiglieri is an Assistant Professor of Orthopedics at CUIMC and Founding Director of their non-operative sports medicine program. I have mentored him since his arrival at Columbia following a career in private practice. We have written several manuscripts together and I have served as an advisor as he has passed through several early stage career transitions.

6/2018-
1/2019

Kyri LePree (as senior in high school)
Kyri worked on our Hip Hop Public Health programs, including specifically exploring socioeconomic determinants of baseline stroke knowledge in parents in our Hip Hop Stroke RCT program. Kryi enrolled into Columbia University on a neuroscience track in Fall 2019.

6/2018-
2021

Alexandra Marcy MD (as 1st year medical student, NYMC), 2018 BRAIN T35 trainee
Alexandra is working on with our group's Columbia Institute for Training, Outreach, and Community Health (InTOuCH) program to assess the impact of training on our community health worker (CHW) participants. She is also exploring for barriers to ongoing training and maintenance of certification for CHW trainees in signing community members into the Affordable Care Act insurance programs. She graduated medical school in 2021 and is currently a primary care resident.

6/2017-
5/2020

Mark Cort MD (as 1st year medical student, NYU), 2017 BRAIN T35 trainee
Mark worked on the TASHE program baseline data, exploring socioeconomic determinants of perceived stroke risk among a cohort of adults enrolled into a stroke education program. He presented an abstract as a poster presentation at the AAN 2018 annual meeting. Mark is pursuing a neurology residency and training began in 2020 at UPenn.

7/2016-
6/2017

Minji Kim MD (as PGY4 Neurology Resident)
Drawing upon Minji's research background in fMRI, she assisted with implementation of the Taub Research Pilot MRI study of collegiate athletes. Dr. Kim is a neurologist practicing in Washington State.

4/2016-
3/2017
David Baker MD (as 4th year medical student, P&S)
For his longitudinal scholarly project, mentored David in an exploration of the secular trends in concussion diagnosis in NY State and worked to develop a post-concussion retirement algorithm. He had 2 publications (*AJSM* November 2017 and *Neurology: Clinical Practice February* 2018). David pursued a career in pediatrics (Pediatrics resident 2017-2020, pediatric critical care fellow 2020-present, Montefiore medical center).

3/2016-
5/2019
Cecilia Davis-Hayes MD (as 4th year P&S medical student, P&S)
Cecilia has dedicated two years to several TBI research projects including MRI in active football players and the epidemiology of concussions including gender differences of Columbia athletes. Several publications and presentations as above, including *JAAOS* and *Neurology: Clinical Practice*. Cecilia is pursuing a career in radiology; she subsequently completed an internship 2019-2020 (Englewood Hospital NJ), and is currently a resident in neurology at NYU (2020-present).

12/2015-
5/2016
Colin Klenk MD (as 4th year P&S medical student, P&S)
For his longitudinal scholarly project, Colin helped develop a curriculum for the planned Hip Hop Volunteer Project, which aims to implement a large-scale elementary health education program in NYC schools using undergraduate and graduate students from Columbia University with an interest in public health. Colin began residency training in neurology at Yale University in 2016 and subsequently completed vascular neurology fellowship also at Yale in 2020. Since then he has been a staff neurologist at Stamford Hospital, also in CT.

05/2015-
8/2015
Jeremy Mitnick (as college junior, University of Michigan)
Jeremy worked as a summer research observer, assisting with developing a new cohort of former Columbia collegiate athletes having automated neuropsychological testing pre and post-concussion. In 2018 he began medical school at Temple University.

05/2014-
04/2015
Elaine Su MD (as 4th year P&S medical student, P&S)
For her longitudinal scholarly project, I mentored Elaine in a study exploring the use of retinal optical coherence tomography (OCT) as a tool to identify neurodegenerative illness in a multidisciplinary practice. Elaine pursued training in adult neurology at Stanford beginning in 2015, and began her clinical neuroimmunology fellowship there in 2019. Elaine is now an assistant clinical professor of neurology at UCLA.

02/2014-
12/2014
Daniel Arteaga MD (as 1st year P&S medical student), 2014 BRAIN T35 trainee
During summer 2014, I mentored Daniel in developing a standardized mortality ratio study entitled "Neurodegenerative Mortality Among a Cohort of Former College Football Players." Initial analyses have been included in an R01

application (PI Noble) seeking to develop a nationwide mortality study in collegiate sports including football. After completing his MD and MBA at Columbia, in 2019 Dan completed internal medicine residency at UT Southwestern and began a geriatrics and palliative care fellowship in 2022 at NYU.

02/2014-
2/2015

Cailey Simmons MD (as 1st year medical student at SUNY-Albany)
During summer 2014, I mentored Cailey in studying the longitudinal Hip Hop Stroke experience from 2005-2014, exploring secular trends in knowledge as well as the influence of environment, neighborhood, and school quality. The work has led to presentations at the 2015 International Stroke Conference and a publication in the *Journal of Stroke and Cerebrovascular Diseases*. She completed her residency in Emergency Medicine at Mount Sinai Medical Center in New York City (2017-2021) and is now practicing at Kaiser Permanente Vallejo Medical Center in CA.

02/2012-
05/2013

Wei-Jen Hsieh MD (as a 4th year P&S medical student, P&S)
As part of her longitudinal scholarly project, I mentored Wei Jen in her development of an integrated math/health curriculum as part of our larger interdisciplinary health project "Hip Hop HEALS (Healthy Eating and Living in Schools)." This project led to funding of an ongoing study (R01 NR017571, PI Williams) "Effect of an Integrated Nutrition-Math Curriculum to Improve Food-Purchasing Behavior of Children. Wei-Jen pursued has a career in pediatrics, beginning with residency training in 2013. She is now in private practice in Washington State.

02/2013-
5/2016

Hannah Roberts MD (as 1st year P&S medical student), 2013 BRAIN T35 trainee
During summer 2013, I mentored Hannah to complete 2 projects relating art-centered experiences and Alzheimer care: 1) caregiver/patient participant perspective and 2) medical students perceptions of dementia before and after the program. Both studies were presented at the 2014 AAN meeting. Study #1 was supported by T35 AG044303; study #2 was supported by the P&S Steven Miller Memorial Fellowship and was later published in *Neurology*. Hannah pursued a career in radiation oncology, with training beginning in 2017 at Dana Farber (Boston, MA). She is presently an Instructor in Radiation Oncology at MGH.

06/2012-
05/2013

Luke White, MD (as PGY3-4 Psychiatry Resident)
Explored medical student perceptions of Alzheimer disease and chronic illness as it affects the family unit. Lessons, co-taught by Drs. Noble and White to all P&S students on the neurology clerkship, included early versions of a film in development by Luke's brother (Banker White), released in 2013 as *The Genius of Marian*. The film has since been shown in international film festivals and as a

2014 episode of "POV" on PBS. POV can be seen by over 97% of the American viewing public, with a cumulative audience average of 2.5 million per program. Luke is now an Attending Psychiatrist at Janian Medical Group.

03/2012-
06/2014
Marco Gonzalez-Castellon, MD (as PGY4-6 Resident/Neurovascular Fellow)
Co-investigator on Assessing efficiency of learning the neurologic exam with a visual tracking device (PI: Noble). Presented as platform at AAN annual meeting, March 2013. After completing a vascular neurology fellowship at CUMC, in 2015 he became Assistant Professor in the Department of Neurological Sciences at the University of Nebraska Medical Center and is the director of their stroke center.

03/2012-
06/2014
Christina Blum, MD (as PGY3-4 Resident)
Co-investigator on Assessing efficiency of learning the neurologic exam with a visual tracking device (PI: Noble). She is currently the Director of Stroke Services, Penn Presbyterian Medical Center and Assistant Professor of Clinical Neurology at the University of Pennsylvania.

01/2012-
05/2013
Tanzid Shams, MD (as PGY-6 Pediatric Neurology Fellow)
Co-investigator on "Concussion in Columbia Undergraduate Football Players (2000 -2011)" (PI: Noble). Awarded best poster at Department of Neurology Resident Research Day 2012; paper was presented at ANA 2013. Manuscript is in development. Since 2015 he has been the director of the Neurology Division of the Johnson City Medical Center in Johnson City, TN (Ballad Health). He is now Associate Professor of Neurology at East Tennessee State University, James H. Quillen College of Medicine.

06/2011-
05/2012
Ben Tolchin, MD (as PGY3 neurology resident)
Developed literature review regarding history of child-mediated health communication and co-authored a manuscript with me. He is currently Assistant Professor of Neurology at Yale University.

07/2009-
2016
Faculty Advisor for P&S Chapter of American Academy of Neurology's Student Interest Group in Neurology (SIGN). Coordinate with chapter's rotating presidents.

Educational Administration and Leadership

		# of annual learners
02/2010-Present	**Hip Hop Public Health, Department of Neurology** Co-Director of Research	6,000
07/2009-12/2016	**Columbia University College of Physicians & Surgeons** Neurology Clerkship Director	150-175

Instructional/Educational Materials used in Print or other Media

1/2015-	**Scientific American Neurology**
2016	Neurology Clerkship Co-Director
	Published online 10/2015

Community Education

02/2017-	Hip Hop Heads UP
present	Concussion education program
	Creator

01/2012-	Old SCHOOL (Seniors Can Have Optimal aging and Ongoing Longevity) Hip Hop
present	A novel child-mediated health communication program
	Creator
01/2010-	Neurology clerkship: New curricula including OSCE
12/2016	*Creator*
2006-	Hip Hop Stroke
present	A novel child-mediated health communication program
	Co-Creator

Patents & Inventions:

*Noble JM, Morrison B, Schevon C, Kymissis I. Systems and methods for real-time concussion diagnosis by electroencephalogram activity monitoring. US Patent No. 11759147, published 9/19/2023

Publications

ORCID: 0000-0003-0648-6702
Google Scholar Statistics: *Citations: 8608, h-index: 39, i10-index: 83*, m-index: 2.3 (ref yr-2008)

Peer-Reviewed Research Publications in Print or other Media
*indicates first, senior, and/or corresponding author

Pending:
1. *Davis-Hayes C, Desai N, Laffey J, Gossett JD, Grubb ER, Levine WN, Hesdorffer DC, **Noble JM**. Increased Risk of Musculoskeletal injury in Collegiate Athletes after Pre-collegiate Concussion (in development)

2. ***Noble JM**, Halpin-Healy C. The catalytic effects of the COVID-19 pandemic on dementia care delivery models: turning theory into practice overnight (in revision, *Current Neurology and Neuroscience Reports*)

3. ***Noble JM**, Minchala S, Hassankhani M, Harris A, Lloyd A, Sawyer V, Williams O. Messaging matters: An elementary school aged Old SCHOOL trial participant and their perceptions of aducanumab during its first week of approval (in development)

4. Zolnoori M, Zolnour A, Vergez S, Sridharan S, Spens I, Topaz M, **Noble JM,** Bakken S, Hirschberg J, Bowles K, Onorato N, McDonald MV. Beyond EHR data: Leveraging natural language processing and machine learning to uncover cognitive insights from patient-nurse verbal communications. *Journal of the American Medical Informatics Association (JAMIA).* 2025 Feb 1;32(2):328-340. PMID: 39667364

5. *Jin M, **Noble JM**. What's in It for Me? Contextualizing the Potential Clinical Impacts of Lecanemab, Donanemab, and Other Anti-β-amyloid Monoclonal Antibodies in Early Alzheimer's Disease. *eNeuro*. 2024 Sep 27;11(9):ENEURO.0088-24.2024. doi: 10.1523/ENEURO.0088-24.2024. PMID: 39332901

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128.   Merritt's Neurology Review. Co-editor (Eds. Rosenberg, Bauerschmidt, **Noble,** Mayer, Louis), Wolters Kluwer (2025).

129.   Merritt's Neurology 14th Edition. Co-Editor (eds. Louis, Mayer, & **Noble**), Wolters Kluwer, (2021).

130.   Merritt's Neurology 14th Edition. Section Editor, "Diagnostic Tests" (eds. Louis, Mayer, & **Noble**), Wolters Kluwer, (2021).

131.   Merritt's Neurology 14th Edition. Section Editor, "Neurological History and Exam" (eds. Louis, Mayer, & **Noble**), Wolters Kluwer, (2021).

132.   Gulf War and Health: Volume 10: Update of Health Effects of Serving in the Gulf War, 2016 (2016), Deborah Cory-Slechta and Roberta Wedge, Editors. Committee member. PMID: 27054224

133.   Merritt's Neurology 13th Edition. Section Editor, "Diagnostic Tests" Wolters Kluwer, 2015.

Books/Textbooks for General Public
134.   "Navigating Life with Dementia" (Oxford University Press/American Academy of Neurology), Author. Published 6/15/2022

Case Reports:

135.   Anderson FL, Hellwinkel JE, Montjoy M, Levi M, Tu Bin, **Noble JM**, Ahmad CS, Bottigleiri TS. Change in Heart Rate Variability after Concussion in a Collegiate Soccer Player. *Neurotrauma Rep.* 2020 Sep 29;1(1):88-92. PMID: 34223534

136.   Hellwinkel JE, Anderson FL, Trofa DP, Deitrich MP, Dansby JD, **Noble JM**, Bottiglieri TS. Post-Traumatic Epilepsy after Sports-Related Concussion: A Case Report. *Neurotrauma Rep.* 2020 Jul 23;1(1):42-45. PMID: 34223529

137.   *Etienne M, **Noble JM**. Multiple parenchymal tuberculomas without tuberculous meningitis. *Arch Neurol*. 2007;64:1045-1047. PMID: 17620499

138.   ***Noble JM**, Mandel A, Patterson MC. Scurvy and Rickets Masked by Chronic Neurologic Illness: Revisiting "Psychologic Malnutrition." *Pediatrics*. 2007 March;119(3):e783-90. PMID: 17332193

139.   Sommerville RB, **Noble JM**, Vonsattel JP, DeLaPaz R, Wright CB. Eosinophilic Vasculitis in an Isolated CNS Distribution. *J Neurol Neurosurg Psychiatry*.2007;78:85-88. PMID: 21686608

140.   ***Noble JM**, Anderson CT, Etienne M, Williams O, Adams DJ. Sarcoid meningitis with fulminant delirium and markedly abnormal cerebrospinal fluid. *Arch Neurol* 2007 Jan;64(1):129-31. PMID: 17210821

141.   ***Noble JM**, Canoll P, Honig LS. Brain Tumor-Associated Dementia. *Sci. Aging Knowl. Environ.* 2005 Aug 24; 2005(34):dn2. PMID: 16120848

Letters to the Editor

142.   *Dhamoon M, **Noble JM**. [Correspondence to] Intranasal insulin improves cognition and modulates beta-amyloid in early AD. *Neurology*. 2009 Jan 20;72(3):292-294. PMID: 19153380

143.   ***Noble JM**, Hauser WA. [Correspondence to] Effects of rivastigmine on cognitive function in patients with traumatic brain injury. Neurology 2007 May 15;68(20):1749. PMID: 17502565

Thesis

144.   "Possible association of periodontitis with cognitive impairment among older adults: analysis of the Third National Health and Nutrition Examination Survey (NHANES-III)." For Master's of Epidemiology, Mailman School of Public Health, graduated 5/2008.

Other Non-Peer Reviewed Publications in Print or Other Media

Published Abstracts

145. ***Noble JM**, Neelesh N, Martinez D, Temprosa M, Bowers A, Doherty L, Febres GJ, Sanchez D, Goldberg TE, Sherif H, Luchsinger JA, and Diabetes Prevention Program Research Group. Implementation of a standardized Video-based Asynchronous Neurological Examination (VANE) in a multi-center study of AD/ADRD: Findings from The Diabetes Prevention Program Outcomes Study (DPPOS) AD/ADRD Project. Alzheimer's Association International Conference (AAIC) 7/29/2024 Poster #86250

146. *L Doherty, JA Luchsinger, M Temprosa, NK Nadkarni Goldbert TE, Sherif H, Bowers A, Martinez D, Febres GJ, Sanchez D, **Noble JM**. Integrating NACC UDSv3 into non AD/ADRD Cohorts: The Diabetes Prevention Program Outcomes Study in Alzheimer's Diseases and Related Dementias (DPPOS)-AD/ADRD Project Experience, Alzheimer's Association International Conference, #687 on 7/30/2024

147. ***Noble JM**, Minchala SG, Hedmann MG, Teresi J, Ocepek-Welikson K, Silver SA, Eimicke JP, Ramirez M, Harris A, Lloyd A, Chhea K, Alvarez-Arango C, Lee Y, Sawyer V, Williams O. Development of the 7-item ASK-AD Assess Symptoms and Knowledge of Alzheimer's Disease tool for multigenerational community dementia awareness: Findings from Old SCHOOL Hip Hop. Alzheimer's Association International Conference (AAIC) 7/29/2024 Poster #89722

148. Houlihan HM, Johnson AS, Smith AC, Guzmán DS, Okafor A, Heuer LB, Talmasov D, Chikwem N, Dass DS, **Noble JM**, Kreisl WC, Small SA, Lao PJ, Microglia density measured by TSPO PET across amyloid positivity and clinical variants. Alzheimer's Association International Conference (AAIC) 7/29/2024 Poster #95057

149. Biber SA, Prado MG, Culhane JE, Phuong J, Keller B, Lerch M, Wang S, **Noble JM**, Moulder KL, Saykin AJ, Gao S, Lai A, Natarajan K, Kukull WA, Mooney S, Stephens K. Advancing Alzheimer's disease and related dementias (ADRD) and COVID-19 research by linking real-world data with a standardized longitudinal ADRD data platform. Alzheimer's Association International Conference (AAIC) 7/31/2024 Poster #94785

150. Honig LS, Kim JM, Gonzalez WP, DiMuro V, Jagannathan R, Marder K, **Noble JM**, Bell KL, Mayeux R. Clinical Use of Lecanemab at an Academic Medical Center. Alzheimer's Association International Conference (AAIC) 7/31/2024 Developing Topic #95181

151. Dass D, Chikwem N, Jagannathan R, **Noble JM**, Bell M, Marder K, & Ghoshal S. (2024, April). Work-up and Counseling for First Evaluation of Cognitive Decline: A Simulation-based Educational Tool and Embedded Learning Results (P8-7.001). In *Neurology* (Vol. 102, No. 17_supplement_1, p. 6444).

152. Hofmann A, Haesler LM, Preische O., Gräber-Sultan S, Obermüller U, Vöglein J, Levin J, Laske C, Fitzpatrick CD, Levin R, Joseph-Mathurin N, Chen CD, Cruchaga C, Goate A, Allegri

RF, Benzinger TLS, Berman S, Chui HC, Fagan AM, Farlow MR, Fox NC, Day GS, Hassenstab JJ, Jack CR, Lee JH, Levey AI, Martins RN, Mori H, **Noble JM**, Perrin RJ, Sperling RA, Rosa-Neto P, Salloway S, Sanchez-Valle R, Schofield PR, Xiong C, Karch CM, Graff-Radford NR, Gordon BA, Morris JC, McDade E, Bateman RJ, Chhatwal JP, Jucker M and Schultz SA (2023), Refinement of Neurofilament light Dynamics in CSF and Blood for familial Alzheimer's Disease. Alzheimer's Dement., 19: e078802. https://doi.org/10.1002/alz.078802

153.   Nordvig AS, Purpura L ,Xi K, Strobino K, **Noble JM**, deLeon MJ. Neurodegeneration blood markers in largely Hispanic and non-Hispanic Black COVID-19 patients: from acute hospitalization to long-term PASC with/without brain fog. Abstract #69220, Alzheimer's Association International Conference 2022.

154.   Honig LS, Sun Y, Irizarry MC, Swanson CJ, Dhadda S, Charil A, Hart D, **Noble JM**, Huey ED, Teich AF. Neuropathological Autopsy Findings in an Individual with Alzheimer's Disease who Received Long-Term Treatment with Lecanemab (BAN2401). Abstract #69220, Alzheimer's Association International Conference 2022.

155.   Schultz SA, Liu L, Ostaszewski B, Fitzpatrick CD, Xiong C, Fagan AM, **Noble JM**, Rosa-Neto P, Farlow MR, Schofield PW, Morris JC. Plasma levels of an N-terminal tau fragment predict core AD and neurodegenerative biomarkers in autosomal dominant Alzheimer's disease: Findings from DIAN. Abstract #69285. Alzheimer's Association International Conference 2022 Aug 2.

156.   Siddiqui, A., Taing, L., Plick, N., Garrie, A., **Noble, J**., Halpin-Healy, C., & Fernandez, H. (2021, April). Measuring How an Arts-Based Educational Program Impacts Medical Students' Perceptions of People with Dementia. Journal of the American Geriatrics Society 2021 (69): S277-S278.

157.   Cort M, **Noble JM**, Eimicke JP, Teresi J, Williams O. Identifying predictors of stroke preparedness among a high risk church-going urban population: Findings from The Tailored Approaches to Stroke Health Education (TASHE) trial. *Neurology* April 10, 2018; 90 (15 Supplement). P1.120.

158.   *Davis-Hayes C, Gossett J, Levine W, Shams T, Harada J, Mitnick J, **Noble J.** Gender Specific Outcomes and Predictors of Concussion Recovery: A Single Site 15- year Ivy League Experience. *Neurology* April 18, 2017 vol. 88 no. 16 Supplement P4.325; 1526-632X

159.   ***Noble J**, Burkett S, Cheng B, Chen Y, Shariff J, Celenti R, Watson C, Papapanou P. Cross-sectional associations between clinical and serological evidence of periodontal disease and cognitive impairment in a multi-ethnic elderly population (P6.075) *Neurology* April 18, 2017, 88:16 Supplement P6.075; 1526-632X.

160. *Baker D, Kulick E, Boehme A, **Noble J**. Effects of the New York State Lystedt Law on Concussion-Related Emergency Healthcare Visits among Adolescents, 2005–2014 (P6.145). *Neurology* April 18, 2017, 88:16 Supplement P6.145; 1526-632X

161. ***Noble JM**, Simmons C, Hecht MF, Williams O. Stroke Knowledge Among Children Is Associated With Measures Of Economic Need. *Stroke* 46 (Suppl 1), ATP391-ATP391

162. ***Noble JM**, Simmons C, Hecht MF, Williams O. Baseline Stroke Knowledge of 4th-6th Grade Children in New York City Public Schools Has No Appreciable Trend from 2005-2014. *Stroke* 46 (Suppl 1), ATP390-ATP390

163. Seifan A, **Noble J**, Mez J, Marder K, Honig L. Hippocampal Laminar Distribution of Phospho-Tau Relates to Alzheimer's Disease and Age of Death. *Neurology* April 8, 2014 vol. 82 no. 10 Supplement P1.247

164. *Roberts HJ, **Noble JM**. Changing Medical Student Perceptions of Dementia: An Arts-Centered Experience. *Neurology* April 8, 2014 vol. 82 no. 10 Supplement P1.318

165. *Roberts HJ, Halpin-Healy C, McGinniss R, **Noble JM**. Museum-based creative arts programming is associated with less dementia patient apathy and better caregiver well-being. *Neurology* April 8, 2014 vol. 82 no. 10 Supplement P1.002

166. *Shams T, Brickman AM, Gossett J, Levine W, **Noble JM**. Subtle Post-Concussion Cognitive Impairment Is Under-Recognized, and yet Identifiable: Findings from the Concussion in Columbia University Sports Student (ConCUSS) Study [ABSTRACT] *Ann Neurol* Dec 2013: 74(S17); page S37.

167. Wright B, Lewis L, **Noble J**, Vonsattel JP, Khandji A, Sommerville R, Wright C. Case Series: Eosinophilic Vasculitis Isolated to the Central Nervous System (P02.053) *Neurology* February 14, 2013 80: P02.053

168. *Gonzalez-Castellon M, Phillips M, Blum C, Goldberg M, **Noble JM**. Assessing the Efficiency of Learning the Neurologic Exam with a Visual Tracking Device (S27.007). *Neurology* February 14, 2013 80:S27.007

169. ***Noble J**, Kang M-S, Honig L. Arteriosclerosis and Alzheimer's disease: A case-control pathologic study. *Alzheimer's & Dementia* 2012, 8(4), P298

170. Collins-Praino L, Scarmeas N, Manly J, Schupf N, **Noble J**, Provenzano F, Griffith E, DeCarli C, Mayeux R, Luchsinger J, Brickman A. White Matter Hyperintensities May Mediate the Relationship Between Inflammation and Cognition in an Elderly Cohort. *Alzheimer's & Dementia* 2012, 8(4), P523

171.   *Williams O, DeSorbo A, **Noble J**. Hip Hop Stroke: Long-Term Retention of Stroke Knowledge Among Sixth Graders Living in a Low-Income Neighborhood. *Stroke* 2012 43: A2476

172.   *Williams O, DeSorbo A, **Noble J**. Hip Hop Stroke: The Standalone Effect of Musical Cartoons on Stroke Knowledge of Fourth Grade Children Living in a Low-Income Neighborhood. *Stroke* 2012 43: A2476

173.   *__Noble J__, Scarmeas N, Celentia R, Elkind M, Wright C, Schupf N, Papapanou N. Serum Antibodies to Periodontal Pathogens are associated with Incident Alzheimer Disease. *Alzheimer's & Dementia* 2012, 8(4), P498

174.   *Williams OA, Gerin W, DeSorbo AL, **Noble JM**. "A Novel Interventional Strategy to Improve Stroke Awareness: The Hip Hop Stroke Project." *Psychosomatic Medicine* 2011; 73 (3) A100.

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176.   *__Noble J__, Schupf N, Luchsinger J. Relation of high sensitivity C-reactive protein with plasma amyloid beta. *Neurology* 2009; 72 Suppl 3: A53

177.   *__Noble JM__, Manly JJ, Schupf N, Tang MX, Mayeux R, Luchsinger JA. "Relation of C-reactive protein to cognitive impairment." *Alzheimer's & Dementia: The Journal of the Alzheimer's* Association 2009; 5(4S): P297

178.   Luchsinger JA, **Noble JM**, Tang MX, Mayeux R. "Hyperinsulinemia, defined as low adiponectin or type 2 diabetes in the elderly, is related with higher late-onset Alzheimer's disease risk" *Alzheimer's & Dementia: The Journal of the Alzheimer's Association* 2009; 5(4S): P386

179.   *__Noble J__, Borrell LN, Papapanou PN, Elkind M, Scarmeas N, Wright C. Association of the Periodontitis Pathogen *Porphyromonas gingivalis* with Poor Memory: Analysis of the Third National Health and Nutrition Examination Survey (NHANES-III). *Neurology* 2008; 70 Suppl 1: A191.

180.   Williams O, Wowo B, **Noble J**, Brust J. Insurance Coverage And Ambulance Use During Acute Stroke In A Low Income Inner City Population. *Stroke* 2008; 39:627.

181.   *__Noble JM__, Scarmeas N, Honig L. Challenges in dementia diagnosis in a multiethnic population. *Neurology* 2007; 68 Suppl 1:A237

182.   *__Noble JM__, Manly JJ, Schupf N, Mayeux R, Luchsinger JA. Possible disparate contribution of diabetes to cognitive impairment in elderly minorities. *Neuroepidemiology* 2007; 28:125.

183.   *Williams O, **Noble JM**. "Hip-Hop" Stroke Education in Central Harlem Elementary Schools: Pilot Data from a Novel Intervention and Proposed Educational Model for Stroke Awareness Developed by the National Stroke Association. *Stroke* 2007.38:457-8.

184.   Williams O, **Noble JM**, Brust JCM. Stroke Associated with Cocaine Abuse: No Longer Just a Problem of the Young. *Neurology.* March 2006; 66 (Suppl 2): A384.

185.   Williams O, **Noble JM**, Brust JCM. Recombinant Tissue Plasminogen Activator (rtPA) for Acute Ischemic Stroke among African Americans in Central Harlem. *Annals of Neurology*, 2005, 58 (S9), p S45

Invited and/or Peer-Selected Presentations at Regional, National or International Levels:
International

6/28/2018	**7th International Human Microbiome Congress 2018** Killarney, Ireland Cross-sectional associations between human oral microbiome next generation sequencing and cognitive impairment in a multi-ethnic elderly population. **Noble JM**, Sandra S, Cheng B, Chen Y, Shariff JA, Celenti R, Watson CWM, Papapanou PN
11/10/2016	**United Nations, NGO Committee on Mental Health** New York, NY Comprehensive Healthcare: Integration of Physical and Mental Healthcare for the Prevention and Control of NCDs Across the Lifespan
3/13/2015	**International Association for Dental Research General Session,** Boston, MA Papapanou PN, Burkett S, Watson C, **Noble JM**. Oral Health Status among Elderly Participants in the WHICAP Study. (Presented by PNP)
3/15/2013	**Alzheimer's Association International Conference**, Boston MA "Public Health and Psychosocial: Education, Training and Technological Applications" Session ***Noble JM**, Hedmann MG, Williams O. Teaching Children about Dementia: Pilot Findings from the Hip Hop Old S.C.H.O.O.L. (Seniors Can Have Optimal aging and Ongoing Longevity) Program. (Presented by JMN)

2/7/2007	**International Stroke Conference,** San Francisco, CA
	"Prevention Strategies" Session
	*Williams O, Noble JM. "Hip-Hop" Stroke Education in Central Harlem Elementary Schools: Pilot Data from a Novel Intervention and Proposed Educational Model for Stroke Awareness Developed by the National Stroke Association (presented by OW)

National

11/19/2024	**EDC/National Dementia Care Collaborative**
	2024 Autumn Summit: Strategies for Implementing Dementia Care: Resources for CMS GUIDE Participants & Other Dementia
	Presentation: Session 5: "Addressing Health Equity when Implementing Comprehensive Dementia Care"

| 6/13/2023 | **NIA Oral Health and Alzheimer's Disease and related dementias Virtual Workshop** |
| | Keynote speaker |

| 9/9/2022 | **Focus on Aging / Federal Partners' Webinar** |
| | COVID-19 & Dementia: Translating findings from the initial NYC wave into longitudinal studies of cognitive aging |

| 7/26/2022 | **Big 10-Ivy League TBI Research Collaboration** |
| | 2 slides 2 minutes 2 questions: Premature Retirement Revisited: The Impact of COVID-19 on Sports Participation Among the B10 and Ivy League Athletes |

| 10/6/2021 | **National Institute on Aging Workshop: Is there a causative role for infectious agents in Alzheimer's Disease?** |
| | "Periodontal disease and cognitive aging in a multiethnic cohort: Findings from the Washington Heights-Inwood Columbia Aging Project (WHICAP) Ancillary Study of Oral Health" |

| 7/21/2021 | **Big 10-Ivy League TBI Research Collaboration** |
| | Keynote panel: Psychological Burden of Retirement in Athletes |

4/15/2021	**Alzheimer's Association**
	COVID-19 & Dementia: A Webinar Series for
	Healthcare Professionals: Challenges and Practical
	Approaches to Dementia Care during
	COVID-19

4/15/2021   **Alzheimer's Association**
COVID-19 & Dementia: A Webinar Series for
Healthcare Professionals: Challenges and Practical
Approaches to Dementia Care during
COVID-19

7/17/2019   **Big 10-Ivy League TBI Research Collaboration**
8th annual meeting, Chicago "Presentation Flash:
NoMo Diagnostics"

7/18/2018   **Big 10-Ivy League TBI Research Collaboration**
7th annual meeting, Philadelphia "Medical Retirement
from Sport After Concussion"

11/30/2017   **Understanding the Role of the Microbiome in Aging
and Age-Related Disorders—Implications for Disease
Treatment and Prevention
National Institutes of Health**
Rockville, MD
Invited Presentation: "Role of Microbiome in AD:
Signals from Periodontal Research"

6/8-9/2016   **The Art of Examination: Art Museum and Medical
School Partnerships**
Museum of Modern Art, NY
Presentation: "Research & Evaluation" and Panelist:
"Counting What Counts: Research and Evaluation in
Arts-based Medical Education"

2/10/2016   **Gulf War and Health Volume 10 Related Briefings
(Capitol Hill, Washington DC)**
Testimony given at:
US Veterans Affairs Administration
US Senate Veterans Affairs Committee
US House of Representatives Veterans Affairs
Committee

10/16/2015   **American Academy of Neurology**
Fall Meeting, Las Vegas, NV
"Neurology Update: Dementia"

07/15-16/2015   **Big 10/CIC Ivy League TBI Research Collaboration**
4th annual meeting, Chicago

Curriculum Vitae
James McCallum Noble, MD MS CPH

"Breakfast by Position: Athletics" and "Connecting the Dots: Report from the funding working group"

4/18/2015 **American Academy of Neurology**
Annual Meeting Washington DC
Clerkship Director & Program Director Session: Critical Thinking and Professionalism
"Thinking about Finches, Firetrucks, and Ways to Develop Clinical Reasoning Skills"

7/17/2014 **Big 10/CIC Ivy League TBI Research Collaboration**
3rd annual meeting, Philadelphia "Active and Reconstructed Player Cohorts to Address Concussion Research Questions: Lessons from the Concussion in Columbia University Sports Students (ConCUSS) Studies"

3/2014 **AFTD's 2014 Education Conference and Annual Meeting**—White Plains NY -small group session for caregivers

3/20/2013 **American Academy of Neurology Annual Meeting,**
San Diego CA
S27.007, part of S27: Neurologic Education.
*Gonzalez-Castellon M, Phillips M, Blum C, Goldberg M, Noble JM. Assessing the Efficiency of Learning the Neurologic Exam with a Visual Tracking Device
Presented (by MGC)

5/4/2007 **World Federation of Neurology North American Regional Meeting Conference**, Boston, MA
*Noble JM, Manly JJ, Schupf N, Mayeux R, Luchsinger JA. Possible disparate contribution of diabetes to cognitive impairment in elderly minorities. (presented by JMN)

4/6/2006 American Academy of Neurology Annual Meeting, April 6, 2006 S54.005, part of S54: Uncommon Causes of Stroke
Williams O, Noble JM, Brust JCM. Stroke associated with cocaine abuse: no longer just a problem of the young. (Presented by JMN)

Regional

10/23/2024	**Stamford Hospital Department of Medicine Grand Rounds** "Update on Alzheimer's Disease"
2/7/2024	**Columbia University Narrative Medicine Grand Rounds** Conversation with Dr. Sandeep Jauhar, author of "My Father's Brain"
11/3/2023	**Riddle Hospital Department of Medicine Grand Rounds** "Update on Alzheimer's Disease"
3/11/2023	**Demarest Free Public Library** "What's new in dementia?"
11/21/2022	**Caring Kind NYC Annual Research Meeting** "Emerging trends in Alzheimer's disease: A clinician's perspective"
11/16/2022	**Columbia Climate School** Soccer in a Warming World Workshop: "Sports-related concussion and climate: Does 'concussion weirding' follow global weirding?"
9/11/2022	**Gabi Williams Alzheimer's Foundation (Nigeria)** Memorial Lecture: "What's new in dementia?"
3/24/2022	**Bloomingdale Aging in Place (A naturally occurring retirement community in Manhattan)** Virtual presentation: "What's new in dementia?"
3/1/2022	**Fordham University Law School** "Dementia: Definition, prevalence, and treatment of dementia." Virtual conference: Dementia and the Law
5/14/2021	**Lankena Medical Center** Medicine Grand Rounds: "Update on Alzheimer's Disease"
5/10/2021	**Caring Kind NYC Research Update**

"What's new in Dementia: Biomarkers, treatments, and research opportunities now and coming soon"

9/11/2020   **NYP Health Outreach (virtual)**
"Oral Health & Dementia"

3/5/2020   **Columbia University Irving Medical Center**
Grand Rounds, Department of Neurosurgery

11/22/2019   **Columbia University Irving Medical Center**
Grand Rounds, Department of Neurology

11/21/2019   **Columbia University Irving Medical Center**
Columbia CEAD 2nd Annual Health Aging & Cargiver Conference
"Alzheimer's Disease and Oral Health: A real connection or just more evidence of getting 'long in the tooth'?"
Program was delivered twice (English & Spanish directly by JMN)

3/30/2019   **Princeton University: The Changing Landscape of Concussion**
"Epidemiologic Perspectives in Traumatic Brain Injury"

2/26/2019   **Columbia University All Staff Winter Meeting, CU**
"Changing the Game"

2/21/2019   **2019 Columbia Engineering in Medicine Research Symposium (at CUIMC)**
"NoMo Diagnostics: From Identifying an Unmet Need to Starting a Start-up"

1/12/2019   **Columbia University, College of Dental Medicine**
At the Crossroads: Medicine/Surgery/Dentistry
"Alzheimer's Disease & Periodontal Disease"

3/14/2018   **Fordham University**
Symposium: "Brain Trauma and College Athletics"

12/6/2017   **Brooklyn Queens Nursing Home**
Brooklyn, NY
Caregiver Training Conference
"Overview of Dementia"

11/30/2017   **NYU-Langone Medical Center**
NYU Concussion Grand Rounds
New York City

Curriculum Vitae
James McCallum Noble, MD MS CPH

"Epidemiological Challenges in Concussion and CTE"

11/17/2017	**PriMED NY Conference** Jacob Javits Center, New York City "What's New in Dementia?"

3/22/2017	**Departments of Neurology, Rutgers University** **Neurology Grand Rounds (Newark Campus)** **Artiss Powell Memorial Lecture (New Brunswick Campus)** First (case) and 10 (years later): The long path ahead to better understanding chronic traumatic encephalopathy

3/17/2016	**Department of Neurosurgery (CUMC)** Grand Rounds: First (case) and 10 (years later): The long path ahead to better understanding chronic traumatic encephalopathy

12/1/2015	**University of Florida, Department of Neurology** **Neurology Grand Rounds** "10 years of Hip Hop Stroke: Improving knowledge, behavior, and ultimately access to acute stroke therapies"

11/18/2015	**17th Annual Stein Lecture** **New Jewish Home, Mamaroneck NY** "Art-Centered Experiences And Cognitive Aging"

10/09/2015	**Alzheimer's Association, NYC Chapter** Caregiver Training Conference "Overview of Alzheimer's Disease"

10/7/2015	**HAS Harlem Advocates for Seniors: Discussion of Dementia** Panelist

4/1/2015	**Columbia University** 2015 Mini-Symposium on the Internet of Things Human-Machine and Wearable Systems in Sports Related Concussion:

12/9/2014	**JCC Manhattan** "Concussion: Are Football + Sports Safe for Your Brain?"

Curriculum Vitae
James McCallum Noble, MD MS CPH

10/20/2014	**Mailman School of Public Health**
	Robert Butler Aging Center Brown Bag Series
	"Museum-based, arts-centered experiences as a
	means to improve dementia caregiver burden"

10/10/2014	**Alzheimer's Association, NYC Chapter**
	Caregiver Training Conference
	"Overview of Alzheimer's Disease"

9/26/2014	**Woodrow Wilson School of Public and International Affairs, Princeton University**
	Symposium: Concussions in youth sports as a public health concern
	"Epidemiological insights and unanswered questions in the continuum of concussion and chronic traumatic encephalopathy (CTE)"

| 9/10/2014 | **Spence High School, New York City** |
| | Review of concussion diagnosis and management. |

| 6/23/2014 | **Alzheimer's Association Brain Awareness Summit, Harlem State Office Bldg, NYC** |
| | Review of AD. |

6/7/2014	**St. Barnabas Medical Center**, Short Hills, NJ
	Geriatric Care Symposium
	"Update on Alzheimer's Disease Diagnosis, Epidemiology, and Treatment"

| 4/24/2014 | **Department of Orthopaedics, CUMC** |
| | Grand Rounds: Review of Sports-Related Concussion |

| 1/27/2014 | **Collegiate High School, NYC** |
| | Review of concussion care/diagnosis/management. |

| 6/8/2011 | **Department of Neurology, CUMC** |
| | Grand Rounds: CPC Discussant |

11/28/2010	**Greater New York Dental Meeting**
	New York, NY
	"Periodontitis: a potential risk for cognitive decline?"

Curriculum Vitae
James McCallum Noble, MD MS CPH

5/6/2010	**Mountainside Hospital** Montclair, NJ Department of Medicine , Grand Rounds "Periodontitis and cognitive impairment: implications of markers of systemic inflammation"
1/2010	**"Community based multidisciplinary interventions to prevent and treat Cognitive Impairment and its Co-morbidities"** **Columbia University Medical Center (CUMC),** ***Noble JM**. "Strategies to Decrease Cerebrovascular Risk in Harlem"
11/20/2009	**Harlem Hospital Center, New York, NY** **3rd Annual Treatment and Prevention of Stroke in Black and Hispanic Populations.** ***Noble JM**. The Relationship between Stroke and Dementia: Is this a Bigger Problem among Blacks and Hispanics?
6/3/2009	**Aging Concerns Unite Us Conference** New York State Association of Area Agencies on Aging Albany, NY *Noble JM and Williams O. Hip-Hop Stroke: Empowering an Inner City Community to Identify and Prevent Stroke in the Elderly.
10/24/2008	**36th Annual Meeting of the New York State Society of Aging** Saratoga Springs NY *Noble JM and Williams O. Hip-Hop Stroke: Stumbling Before Success.

Invited Media

11/24/2024	**SELF Magazine (online)** "7 Signs a Loved One May Be Developing Dementia That a Lot of People Miss"
10/24/2024	**Columbia Spectator (online and in print)** "How the Ivy League is tackling concussions in football"
10/17/2024	**Federal Judiciary Center** "Dementia and the Law" (online training for all members of US federal judiciary)

| 9/27/2024 | **NYP Health Matters (online)** |
| | "Can Concussions Lead to Parkinson's Disease?" |

| 5/17/2024 | **ALZFORUM (online)** |
| | "Gaining a Foothold: Amyloid Immunotherapy in Clinical Practice" |

| 2/7/2024 | **NYP Physician Stories (online)** |
| | 5 Questions with Dr. Noble: A multidisciplinary approach to neurological care driven by diverse interests |

| 2/1/2024 | **ALZFORUM (online)** |
| | "Adieu to Aduhelm: Biogen Stops Marketing Antibody" |

| 1/26/2024 | **ALZFORUM (online)** |
| | "Rising Leqembi Prescriptions Are Straining Clinic Capacity" |

| 1/12/2024 | **NYP Health Matters (online)** |
| | "What is Chronic Traumatic Encephalopathy?" |

| 12/1/2023 | **NYP Health Matters (online)** |
| | "How to support someone with Alzheimer's" |

| 8/17/2023 | **Neurology Today (online and in print)** |
| | "The FDA and CMS Have Pressed the Go Button on Lecanemab What Happens Now?" |

| 8/17/2023 | **Specialty Pharmacy Continuum** |
| | "CMS Will Cover 80% Of Leqembi Cost; No Trial Entry Needed: A new era in Alzheimer's therapy" |

| 7/27/2023 | **Neurology Today (in print and online)** |
| | "Tailored Diet Does Not Show Cognitive Benefit, Trial Finds" |

| 7/21/2023 | **NYP Health Matters (Podcast)** |
| | "How Memory Works with Dr. James Noble" |

| 6/1/2023 | **Brain & Life (Online)** |
| | "How to Talk to Loved Ones Who Have Dementia" |

| 6/1/2023 | **Brain & Life (Magazine)** |
| | "Journalist Natalie Morales Spreads the Word About Alzheimer's Disease" |

2/17/2023	**NYP Health Matters (online)** "What to know about frontotemporal dementia"
2/16/2023	**Neurology Today** "Acute Infections That Lead to Hospitalization Increase the Risk for Dementia"
2/8/2023	**Columbia Daily Spectator** "Columbia professors' startup changes the game for concussion detection**"**
1/20/2023	**NYP Health Matters** "Concussions in Sports: What to Know about the Signs, Symptoms, and Treatment"
1/9/2023	**CBS New York (TV and online)** "Researchers experimenting with device in helmets measuring brain activity to combat concussions"
11/17/2022	**Neurology Today** "Dementia and Suicide Risk: Early-Onset Patients, New Diagnoses, and Those with Psychiatric Illness Most at Risk"
9/1/2022	**Neurology Today** A Diet of Ultra-Processed Foods Is Associated with Increased Dementia Risk
8/4/2022	**Brain & Life (podcast)** Journalist Greg O'Brien on Chronicling His Life with Alzheimer's
8/4/2022	**Neurology Today** When Patients Have Guns: How to Discuss the Potentially Deadly Combination of Dementia and Firearms
8/3/2022	**Boston Globe (newspaper)** New research suggests intensity of hits in sports, not years played, may be better predictor of devastating brain damage
8/1/2022	**Brain & Life (magazine)** A Dementia Handbook for Patients and Families (interview about the book *Navigating Life with Dementia*)
6/14/2022	**Lucy's Record Shop (podcast)**

Ep 7. Unlocking Memories (interview covering my early career path to present)

12/1/2021	**Brain & Life (magazine)** "Art Programs Educate and Engage" (discussing Arts & Minds)
10/21/2021	**Neurology Today** "Then and Now: 20 Years After Meeting a Senior Neurology Editor, James M. Noble Reflects on Stepping Into His Shoes" (discussing my career leading to Merritt's Neurology co-editor)
3/31/2021	**Trailblazers with Walter Isaacson (Podcast)** "Sports Medicine: Pushing Ourselves to the Limit" (covering NoMo technology)
8/19/2020	**Medscape Medical News (online)** "More Evidence Links Gum Disease and Dementia Risk"
8/6/2020	**20 Segundos o Mas** Multiple terrestrial and internet radio interviews conducted in Spanish, including WLCH-FM, WGNK-FM, WYUU-FM, KIQI-AM/KATD-AM, Spanish Public Radio ("Al Mediodia") and Neuva Vida Network ("Al Dia"). Total listenership: 1.6 million
4/29/2019	**JAMA** Medical News & Perspectives: "The Arts Dispel Medical Students' Qualms About Dementia" (PMID: 31017634)
1/23/2019	**Science Magazine (online)** "Gum disease–causing bacteria could spur Alzheimer's"
12/2018	**Columbia Magazine** "New Smart Helmet Could Spot Concussions in Real Time"
10/18/2018	**Fordham Law News** "Concussion conference tackles effects of brain injury, with NFL football a focus"
9/2018	**Columbia Medicine, 2018 Annual Report** 2018 Research Highlights "Dementia Drop"
7/2018	**NoMoDx: Academic Venture Exchange**

Online video

7/22/2018	**CUIMC Newsroom** What Do We Know about Heading and Concussions?
4/2018	**Gray Area: a podcast about growing old in New York** Life Outside the Lines: Creating art with dementia
2/2018	**AJSM February 2018 Author Online Interview, AOSSM publishing** Discussing "Effects of the New York State Concussion Management and Awareness Act ("Lystedt Law") on Concussion-Related Emergency Health Care Utilization Among Adolescents, 2005-2015,"
2/6/2018	**Neurology (AAN) Podcast** Covering *Neurology: Clinical Practice* publication "Medical Retirement from Sport for Neurological Reasons: a practical guide for a difficult discussion"
2/2/2018	**Wired Magazine (online)** "Could a vaccine protect football players from concussions?" Features technology in NoMo Diagnostics
1/30/2018	**CUMC newsroom online** "Outfitting a Football Helmet to Diagnose Concussion**"**
12/1/2017	**The Inside Press (Westchester newspapers)** "Recognizing Dementia: When it's Time to Seek Care"
11/17/2017	**CUMC newsroom online** "Drop-Off in Dementia in Northern Manhattan Echoes National Trend"
8/2017	**NEJM Journal Watch (podcast):** Alcohol and Cognitive Aging Review
2/28/2017	**AAN/PR Newswire Press release (online and in print)** "Women May Be at Higher Risk for Sports-Related Concussion than Men"; republished in multiple news outlets in US, UK, Australia, and in Spanish worldwide Related: "Among College Athletes, Concussion Risk May Be Higher in Women" (CUMC) "Female Athletes More Prone to Recurrent Concussion" (Med Page Today)

"Concussions More Likely in Female Athletes"
(Health Day)

1/29/2017	**Uni Mas (Television, Univision NYC affiliate)** "Contigo en la Comunidad" (discussing Alzheimer disease in Spanish)
3/15/2016	**Reuters (Life, online)** "Gum disease may signal faster Alzheimer's decline"
1/6/2016	**Discovery News (online)** "What Can We Learn From Michael Keck's Brain?"
1/4/2016	**Reuters Health (online)** "Dead college football player leaves clues of concussions' toll on brain"
1/4/2016	**STAT News (online)** "After concussions, young football player's plea: Donate my brain to science"
1/4/2016	**Health Day News (online)** "College Football Player's Autopsy May Offer Clues to Brain Trauma"
12/4/2015	**Columbia Magazine (print and online)** "Picturing Alzheimer's"
8/5/2015	**NPR (Health Shots Online Feature)** "Sharing Art Helps Medical Students Connect With Dementia Patients"
6/12/2015	**CBS This Morning (National TV)** Discussed concussion monitoring/protection in the context of Women's World Cup Soccer
4/30/2014	**WNYC Brian Lehrer Show (Broadcast and online NPR Radio)** "Eyes on the Prize" (concussion in competitive cheerleading)
12/15/2013	**NBC Today Show (National TV)** Discussed chronic traumatic encephalopathy in context of American professional football
11/6/2013	**CBS New York (NYC area TV and online)** Discussed publication regarding childhood musical training and the effect on cognitive aging

| 10/24/2013 | **NYU Arthur L. Carter Journalism Institute (online)** |
| | "Art Program in Harlem Strives to Improve Quality of Life for Those Affected by Alzheimer's and Dementia" |

10-11/2012	**Neurology Now (print)**
	"One Precious Gift"
	Discussion of brain donation as it relates to notable patient

8/23-24/2012	**CBS New York (NYC area TV and online)**
	"Dementia and Dental Health"
	Discussion of peer-reviewed publication #2

5/11/2012	**Uptown Radio (online radio)**
	"Fighting Effects of Alzheimer's With Art And Interaction"
	Discussion of Arts & Minds and related works

1/31/2012	**Center for Advancing Health: Health Behavior News Service (online)**
	"Study Illuminates Ethnic Disparities in Diabetes and Cognitive Impairment"
	Discussion of peer-reviewed publication #5

5/24/ 2011	**World Journalism Institute Times Observer (online and print)**
	"Attacking Alzheimer's Disease: New Non-profit Uses Art to Fight Dementia"
	Discussion of Arts & Minds and related works

| 5/2010 | **Good Housekeeping (print)** |
| | Discussion of peer-reviewed publication #2 |

11/16/2009	**BBC Radio 5 Live (terrestrial and online radio)**
	"Up All Night" with Dotun Adebayo
	Discussion of peer-reviewed publication #2

11/13/2009	**Reuters (online and print)**
	"Trouble thinking? Better see the dentist"
	Discussion of peer-reviewed publication #2

10/15/2009	**Neurology Today (online and print)**
	"Children in Minority Communities are Taught to Recognize Stroke Symptoms"
	Discussion of peer-reviewed publication #1

Curriculum Vitae
James McCallum Noble, MD MS CPH

12/ 2005   **Neurology Today (online and print)**
                  "Pilot Study Reports High Rates of Intracranial Hemorrhage in
                  African-Americans Treated with tPA"
                  Discussion of Abstract #1

**IN THE JUDICIAL COUNCIL OF THE UNITED STATES
COURT OF APPEALS FOR THE FEDERAL CIRCUIT**

In Re Complaint No. 23-90015

DECLARATION OF DR. JAMES M. NOBLE

I, **Dr. James M. Noble**, declare pursuant to 28 U.S.C. § 1746 as follows:

1. I am a Professor of Neurology at Columbia University Irving Medical Center (CUIMC). I have been a member of the faculty at Columbia University since 2008. I am also appointed in the Taub Institute for Research on Alzheimer's Disease and the Aging Brain and the GH Sergievksy Center, both at CUIMC.

2. I have prepared a report in this matter dated January 30, 2025, to which was attached a copy of my curriculum vitae (CV).

3. Both my report and CV are true and correct to the best of my knowledge and the report presents my professional opinions.

4. I have been compensated for my work in this matter at my customary hourly rate of $400/hour.

I declare under penalty of perjury that the foregoing is true and correct.

              _____
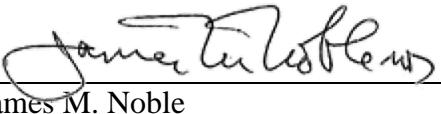
Dated: February 6, 2025   Dr. James M. Noble

REPORT OF JONATHAN DERIGHT, PHD, ABPP-CN

Case Reference:	*In re Complaint No. 23-90015*
Date of Report:	January 27, 2025

INTRODUCTION

In the Spring of 2023, a proceeding began to investigate whether Judge Pauline Newman—a then 96-year-old judge—was mentally fit to perform the duties of her office in response to mounting concerns that she may have been experiencing significant cognitive problems. A Special Committee was appointed to investigate the matter. The Special Committee found evidence that, in their opinion, provided a reasonable basis to indicate that Judge Newman may suffer from a disability that made her unable to discharge the duties of her office. The Special Committee directed Judge Newman to undergo neurological and neuropsychological testing, which Judge Newman declined. On the recommendation of the Special Committee, Judge Newman was suspended from hearing cases for a period of one year. In September 2024, the suspension was renewed for a period of one year. Subsequently, on September 25, 2024, Judge Newman submitted a motion for reconsideration. That motion was primarily based upon the report of Dr. Aaron Filler dated 08/24/2024. Dr. Filler concluded that Judge Newman's physical and neurologic exams were "entirely normal," that a Perfusion CT scan "rules out all of the known causes of MCI…and any dementias," and that there was "no material concern that requires further medical testing."

I have reviewed Dr. Filler's report, and it is my opinion that:

1. Dr. Filler's opinion was not based on standard, reliable, and accepted methods to diagnose cognitive impairment
2. Dr. Filler's examination did not address all possible causes of cognitive impairment
3. Dr. Filler's conclusion that no further testing was needed was premature and did not give proper weight to obvious signs of possible impairment in the materials gathered by the Special Committee

I also reviewed several affidavits and declarations that highlighted concerning signs of possible cognitive decline that warrant further comprehensive investigation with validated methodologies. It is my opinion that examinations by Dr. Rothstein and Dr. Carney did not comprehensively address Judge Newman's cognitive abilities in a manner consistent with standards in the field. Specifically, relying solely upon cognitive screening measures (e.g., the MoCA and the 3-MS) to evaluate fitness for duty in a person with the significant responsibilities of a federal judge is prone to false-negative errors, contrary to scientific guidance, and lacks the psychometric sophistication to determine whether Judge Newman is suffering from cognitive impairment.

SUMMARY of EXPERT QUALIFICATIONS

I am a clinical psychologist licensed in Virginia, Maryland, and Washington, DC. I am also a diplomate (i.e., Board Certified) in the specialty of Clinical Neuropsychology from the American Board of Professional Psychology. I am a clinical supervisor for clinical psychology graduate students at the George Washington University. I am an approved forensic examiner for competency to stand trial and mental sanity evaluations in the Commonwealth of Virginia, and I am also a member of the Forensic Evaluation Oversight Panel for the Commonwealth. Further, I am a qualified Baseline Assessment Program (BAP) provider for the NFL Concussion Settlement Program and an approved evaluator for the NCAA Concussion Medical Benefits Settlement Program.

I work as a clinical and forensic neuropsychologist in independent practice. In my role, I routinely evaluate patients with a broad array of mental health conditions (both cognitive and psychiatric in nature) to determine their diagnosis, recommendations for treatment, and, when applicable, the manifestation of their condition in various legal contexts. This includes fitness for duty evaluations for physicians, attorneys, and other professionals involving cognitive and psychiatric symptoms, independent medical evaluations for disability and workers' compensation, preemployment evaluations, and evaluations to maintain security clearance. I have been qualified as an expert in various state and federal courts in a retained and court-ordered capacity.

I have delivered trainings in clinical and forensic neuropsychology to judges, attorneys, and mental health professionals. Most relevant to the present report, I have been a panel member for numerous presentations related to the aging legal profession presented to the National Conference for Lawyer Assistance Programs, the DC Bar, and District of Columbia Superior Court Judges. The purpose of these presentations was to highlight the growing challenges facing the aging legal community and how to address concerns about cognitive problems procedurally in a fair and effective manner. I have no personal, professional, or business experience with Judge Newman or any others involved in this matter.[1,2]

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[1] In conducting a fitness for duty evaluation, it is recommended that the examiner not have any prior relationship with the party being evaluated. "[A] mental health FFD evaluator should not have had a previous personal, social, or business relationship with the employee or the employer. Such relationships may also interfere with the evaluator's ability to conduct a thorough, proper, or independent evaluation."
Wettstein, R. M. (2013). Fitness-for-duty evaluations. In L. H. Gold & D. L. Vanderpool (Eds.), *Clinical Guide to Mental Disability Evaluations* (pp. 309–336). Springer Science + Business Media. https://doi.org/10.1007/978-1-4614-5447-2_12

[2] When agreeing to perform a fitness for duty evaluation, a clinician should identify the relevant clinical and forensic questions, determine whether that question is within his or her area of expertise, ensure that they can be impartial, and know the relevant standards, rights, and disclosure rules.
Corey, D. M. (2011). 13 Principles of Fitness-for-Duty Evaluations for Police Psychologists. In Jack Kitaeff (Ed.), *Handbook of Police Psychology* (p. 263). Routledge.

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REPORT OUTLINE

This report is based on my review of materials listed in Appendix A.

SECTION 1: ANALYSIS OF DR. FILLER'S REPORT AND OPINIONS

- *Section 1.1*: Dr. Filler did not perform a comprehensive evaluation consistent with standard practice in assessing cognitive impairment.

- *Section 1.2*: Dr. Filler's opinion that Judge Newman's Perfusion CT scan "rules out all of the known causes of MCI…and any dementias" is not based on a method that has widespread acceptance within the relevant scientific community.

- *Section 1.3*: A "normal" Perfusion CT scan does not obviate the need for generally accepted and objective neuropsychological testing.

- *Section 1.4*: Dr. Filler mischaracterized neuropsychological testing as a subjective means of evaluating a patient.

- *Section 1.5*: There are official criteria and guidelines used to diagnose cognitive impairment, and they do not involve simply administering a Perfusion CT scan.

- *Section 1.6*: Dr. Filler's opinion about Judge Newman's abilities based on a comparison of her activity during his oral arguments in front of her in 2019 and 2022 and his interview of her in 2024 is highly subjective, unscientific, and unreliable.

- *Section 1.7*: Dr. Filler's opinion that there was "no material concern that requires further medical testing" was not based on a comprehensive evaluation and ignores common and obvious signs of possible impairment provided in the materials he reviewed.

- *Section 1.8*: Assessing potential cognitive impairment in the workplace requires a comprehensive approach that is tailored to the needs of a job.

SECTION 2: ANALYSIS OF ADDITIONAL MATERIALS

- *Section 2.1*: The provided affidavits and declarations highlight concerning signs of possible cognitive decline that warrant further comprehensive investigation with validated methodologies.

- *Section 2.2*: Dr. Rothstein's report does not effectively rule out the presence of possible cognitive decline.

- *Section 2.3*: Dr. Carney's report does not effectively rule out the presence of possible cognitive decline.

SECTION 3: CONCLUSIONS AND OPINIONS

- *Section 3.1*: The evidence and opinions put forth by Drs. Filler, Rothstein, and Carney were not consistent with standard practice in addressing possible cognitive impairment in a fitness for duty evaluation, and conclusions from these exams indicating that Judge Newman is not in need of further evaluation are not supported.

SECTION 1: ANALYSIS OF DR. FILLER'S REPORT AND OPINIONS

Dr. Filler, a neurosurgeon and attorney, authored a report dated 08/24/2024.[3] Dr. Filler stated that he volunteered to evaluate Judge Newman and that he has previous experience arguing cases in front of her. Dr. Filler stated that he based his opinion on a review of records, a Perfusion Computed Tomography (Perfusion CT) scan, a "full neurological evaluation"[4] of Judge Newman, and an analysis of Judge Newman's "verbal and analytical abilities"[5] based on his prior interactions with her as an attorney in 2019 and 2022. In sum, Dr. Filler stated, "I believe that the relevant judicial evaluators should conclude that the components of this report can and do meaningfully and relevantly show that Judge Newman does not suffer from any dementia or detectable decline in intellectual function and that the Judicial Council's request for medical evaluation of the Hon. Pauline Newman has now been sufficiently completed."[6]

More specifically, Dr. Filler offered the following opinions[7]:

1) "Judge Newman's general physical exam and neurologic exam was entirely normal" from a cognitive perspective;

2) Judge Newman's Perfusion CT scan "showed an entirely normal blood flow function and anatomy," which "rules out all of the known causes of MCI (mild cognitive impairment) and any dementias";

3) Judge Newman's Perfusion CT test results obviate any need for a neuropsychology test battery;

4) that "there is no evidence of any mild cognitive impairment, dementia or other mental deterioration" based on his analysis of her actions in his own oral arguments in front of her in 2019 and 2022; and

5) that there is "no material concern that requires further medical testing."

After reviewing Dr. Filler's report and other information highlighted in Appendix A, it is my opinion that Dr. Filler's evaluation of Judge Newman did not adhere to standard practices in the field for diagnosing cognitive impairment, and the methods that he did use lack comprehensiveness and scientific credibility to assess possible cognitive impairment in Judge Newman. I will outline my reasoning for this in the sections below.

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[3] Aaron Filler, *Consultation Report*, (unpublished report, 2024) (on file with author).
[4] Filler, *Consultation Report*, at 4.
[5] Filler, *Consultation Report*, at 4.
[6] Filler, *Consultation Report*, at 8.
[7] Filler, *Consultation Report*, at 40.

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> **SECTION 1.1:** Dr. Filler did not perform a comprehensive evaluation consistent with standard practice in assessing cognitive impairment.

There are standard and accepted methods to assess for cognitive impairment, and simply administering a Perfusion CT scan is not one of them. Dr. Filler stated that his neurological evaluation of Judge Newman was "entirely normal,"[8] but, other than a CT scan, his examination of cognitive problems mainly relied on her self-report of memory problems. The problematic nature of this can be easily seen when considering that Dr. Filler stated that Judge Newman denied repeating herself ("[Immediate Memory] – Not repeating herself"),[9] while there were numerous indications from materials that he reviewed explicitly indicating a tendency to repeat herself (see numerous examples in *Section 2.1*). Despite this contradiction, Dr. Filler opined that Judge Newman "demonstrated appropriate personal insight."[10] Further, Dr. Filler stated that Judge Newman was "oriented…to person, place, time, and situation,"[11] but simply being oriented to herself, the date, the location, and the situation is not nearly the level of scrutiny expected for an evaluation of possible cognitive impairment for a person in a position with the significant responsibilities of a federal judge.

Dr. Filler's handwritten notes indicate that Judge Newman denied having changes in face recognition, recalling words to songs, and recalling landmarks; however, this was again based on her self-report only, and these types of impairments would not be likely to be prominent in the early course of a neurodegenerative disease process.[12] Normal functioning in these areas does not preclude possible cognitive impairment. Overlearned information (e.g., knowing landmarks) and behaviors (e.g., engaging in a debate) are much less susceptible to the effects of cognitive decline than is the processing of novel information,[13,14] and this series of questioning was not an effective way to explore possible cognitive deficits.

Dr. Filler's use of "direct relevant personal experience comparisons relative to two oral arguments in 2019 and 2022 before panels which included Judge Newman"[15] is neither a scientific nor objective process for determining the presence and extent of such impairment. His opinion that "It is highly unlikely that any person suffering from even mild cognitive decline could rapidly understand and explain back this level of

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[8] Filler, *Consultation Report*, at 40.

[9] Filler, Handwritten Notes dated 08/24/24, at 1

[10] Filler, *Consultation Report*, at 27.

[11] Filler, *Consultation Report*, at 28.

[12] "Except in severe forms of major neurocognitive disorder, semantic, autobiographical, and implicit learning are relatively preserved, compared with recent memory."
American Psychiatric Association. (2022). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., text rev.). American Psychiatric Publishing.

[13] Salthouse, T. A. (2019). Trajectories of normal cognitive aging. *Psychology and Aging, 34*(1), 17-24. https://doi.org/10.1037/pag0000288

[14] Hachinski, V., Iadecola, C., Petersen, R. C., Breteler, M. M., Nyenhuis, D. L., Black, S. E., ... & Leblanc, G. G. (2006). National Institute of Neurological Disorders and Stroke–Canadian stroke network vascular cognitive impairment harmonization standards. *Stroke, 37*(9), 2220-2241.

[15] Filler, *Consultation Report*, at 9.

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complex technology in disparate fields and then immediately progress to an on target analysis of equally complex patent law issues"[16] is not a scientifically validated way to measure cognitive abilities, as further discussed in *Section 1.6* below, and does not preclude the presence of cognitive impairment.

It is well known that individuals with higher levels of education are more likely to be able to mask clinical manifestations of cognitive impairment, potentially leading to faster objective cognitive decline once symptoms appear.[17,18] Thus, Judge Newman is more likely to be able to "mask" cognitive symptoms outside of standardized cognitive testing, especially when engaging in familiar tasks. Dr. Filler did not even include a screening measure for cognitive impairment (which have their own problems as described in *Section 2*), and he did not directly address Judge Newman's cognitive abilities using any semblance of an objective cognitive test. This is not in line with the guidelines in the field for assessing mild cognitive impairment or dementia,[19,20,21] as further highlighted in *Section 1.5*.

> **SECTION 1.2:** Dr. Filler's opinion that Judge Newman's Perfusion CT scan "rules out all of the known causes of MCI…and any dementias" is not based on a method that has widespread acceptance within the relevant scientific community.

Perfusion CT is not used to diagnose cognitive impairment. It is a tool that can help differentiate among different types of impairment once other methods (e.g., cognitive testing) are used, but it is not a replacement for cognitive testing. To be clear, the purpose of this report is not to dismiss the science behind Perfusion CT; rather, it is to demonstrate that the use of this technology alone without a neuropsychological evaluation is an insufficient basis to conclude a definitive lack of cognitive impairment in a fitness for duty context.

Dr. Filler contended that Perfusion CT is exceedingly more objective than cognitive testing. He state, "[U]nlike a situation where there may be a 'defense neuropsychology report' and a 'plaintiff neuropsychology report' that disagree completely on nearly every conclusion, there is no 'defense CT scan' and 'plaintiff CT scan' because the data is completely objective requiring little if any subjective interpretation."[22] This distinction is inaccurate, and research has documented the exact opposite (e.g.,

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[16] Filler, *Consultation Report*, at 13.

[17] An, R., Gao, Y., Huang, X., Yang, Y., Yang, C., & Wan, Q. (2024). Predictors of progression from subjective cognitive decline to objective cognitive impairment: A systematic review and meta-analysis of longitudinal studies. *International Journal of Nursing Studies, 149,* 104629.

[18] Meng, X., & D'arcy, C. (2012). Education and dementia in the context of the cognitive reserve hypothesis: a systematic review with meta-analyses and qualitative analyses. *PloS One, 7*(6), e38268.

[19] American Psychiatric Association. (2022). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., text rev.). American Psychiatric Publishing.

[20] Albert, M. S., DeKosky, S. T., Dickson, D., Dubois, B., Feldman, H. H., Fox, N. C., ... & Phelps, C. H. (2013). The diagnosis of mild cognitive impairment due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. *Focus, 11*(1), 96-106.

[21] Langa, K. M., & Levine, D. A. (2014). The diagnosis and management of mild cognitive impairment: a clinical review. *Journal of the American Medical Association, 312*(23), 2551-2561.

[22] Filler, *Consultation Report*, at 3.

"These neuroimages have remarkable potential for forensic use, but they are too new, too uncertain, and too laden with troubling questions to earn easy admission to the court.").[23] This has been consistent in literature over time.

Baskin, Edersheim, & Price (2007) commented on the limits to objectivity in neuroimaging. They stated,

> *"A brain abnormality does not necessarily imply dysfunction. Most current data allows only correlation, not causality, to be inferred."*

They further explained,

> *"PET, SPECT, and fMRI reveal changes in blood flow that are presumed to reflect changes in local brain cell activity. They essentially represent statistical maps of the probability of a change in local blood flow correlated with some task being carried out by the subject."[24]*

Regarding the applicability of neuroimaging alone to diagnosing dementia, Henderson (2012) stated,

> *"Anatomical imaging studies such as conventional magnetic resonance imaging (MRI) or computed tomography (CT) have limited usefulness in early dementia, except to rule out alternative diagnoses, such as hemorrhage, unsuspected lesions, or tumors."*

While multiple studies have documented volumetric changes in the hippocampus and the medial temporal lobe associated with Alzheimer's disease, the technology is not yet advanced enough to differentiate between different types of dementia based on the current knowledge of early anatomical changes.[25]

Similarly, de-Wit and colleagues (2016), stated,

> *"To many researchers, the idea that neuroimaging might be assumed to provide a direct measure of information is so obviously false that questioning it might seem like nothing but a straw man argument."[26]*

This has not changed in recent years. In 2019, Gkotsi, Gasser, and Moulin examined twenty-seven cases that presented neuroscientific evidence in trials, and they found that:

> *"While neuroimaging evidence is often presented by the defense as a scientific method able to offer a precise diagnosis of the pathology in question, our case analysis shows that the very same neurobiological evidence can be interpreted in different — sometimes diametrically opposed — ways by defense and State experts."*

They went on to state:

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[23] Moriarty, J. C. (2008). Flickering admissibility: neuroimaging evidence in the US courts. *Behavioral Sciences & The Law*, *26*(1), 29-49.

[24] Baskin, J. H., Edersheim, J. G., & Price, B. H. (2007). Is a picture worth a thousand words? Neuroimaging in the courtroom. *American Journal of Law & Medicine*, *33*(2-3), 239-269.

[25] Henderson, T. A. (2012). The diagnosis and evaluation of dementia and mild cognitive impairment with emphasis on SPECT Perfusion neuroimaging. *CNS Spectrums*, *17*(4), 176-206.

[26] de-Wit, L., Alexander, D., Ekroll, V., & Wagemans, J. (2016). Is neuroimaging measuring information in the brain? *Psychonomic Bulletin & Review*, *23*, 1415-1428.

> *"Conflicting testimony about the same empirical evidence goes against the hypothesis of neuroscientific techniques constituting 'objective and hard evidence,' able to reach solid, scientific, and objective conclusions. Frequent conflicts between neuroimaging experts require the courts to deal with the resulting uncertainty."*[27]

Perfusion CT is not sensitive enough to elucidate the presence of cognitive problems on its own. Images showing blood flow do not definitively rule in or rule out cognitive disorders, nor do they tell you how those brain cells are functioning. For example, if Judge Newman's Perfusion CT scan showed markedly reduced blood flow, the appropriate conclusion would not be that Judge Newman was unable to fulfil her duties without further evaluation; that is, results from a Perfusion CT scan cannot be the definitive basis for ruling in or ruling out cognitive impairment with regard to fitness for duty.

Neuroimaging results are not a recognized and acceptable way to measure cognitive impairment. As Gaudet and Marchant (2016) stated, the attempted use of neuroimaging evidence is premature, inappropriate, and—at best—allows only for correlation, not causality, to be inferred.[28] This is consistent with other studies. For example, Treadway and Buckholtz (2011) stated,

> *"Simply determining that damage is present says little regarding the implications of such damage...Rather, this gap is bridged by the standard forms of neuropsychological assessment that seek to reveal specific cognitive and behavioral impairments that have more direct relevance for a client's actions, for which neuroimaging data merely serve as context or precondition."*[29]

Thus, Dr. Filler's opinion that Perfusion CT "is far more accurate and specific than neuropsychological testing"[30] in diagnosing cognitive impairment and that the results of Judge Newman's scan "are decisive"[31] in ruling out cognitive impairment are not consistent with scientific principles and accepted methods in the field and do not accurately represent the use of neuropsychological assessment in the evaluation of cognitive impairment.

> **SECTION 1.3:** A "normal" Perfusion CT scan does not obviate the need for generally accepted and objective neuropsychological testing.

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[27] Gkotsi, G. M., Gasser, J., & Moulin, V. (2019). Neuroimaging in criminal trials and the role of psychiatrists expert witnesses: A case study. *International Journal of Law and Psychiatry, 65*, 101359.

[28] Gaudet, L. M., & Marchant, G. E. (2016). Under the radar: Neuroimaging evidence in the criminal courtroom. *Drake Law Review, 64*, 577.

[29] Treadway, M. T., & Buckholtz, J. W. (2011). On the use and misuse of genomic and neuroimaging science in forensic psychiatry: current roles and future directions. *Child and Adolescent Psychiatric Clinics, 20*(3), 533-546.

[30] Filler, *Consultation Report*, at 32.

[31] Filler, *Consultation Report*, at 8.

According to PubMed,[32] only six articles have ever been published with the words "Perfusion CT" and "dementia" in the title,[33] and only five articles have ever been published with the words "Perfusion CT" and "cognitive" in the title.[34] This does not mean that more articles have not been published about Perfusion CT and cognitive impairment (i.e., some may have been written with different wording in the title), but the difference is staggering when the same searches are performed replacing "Perfusion CT" with "neuropsychology"; 606 articles for "dementia"[35] and 1,399 articles for "cognitive."[36] This does not change when the publication date is restricted to the past 10 years (198 articles for "dementia" and 756 articles for "cognitive" since 2014). Simply put, neuropsychological testing is used exponentially more frequently to assess cognitive impairment in research than is Perfusion CT, and this is also consistent with clinical practice.

Scientific Paper Titles Since 2014
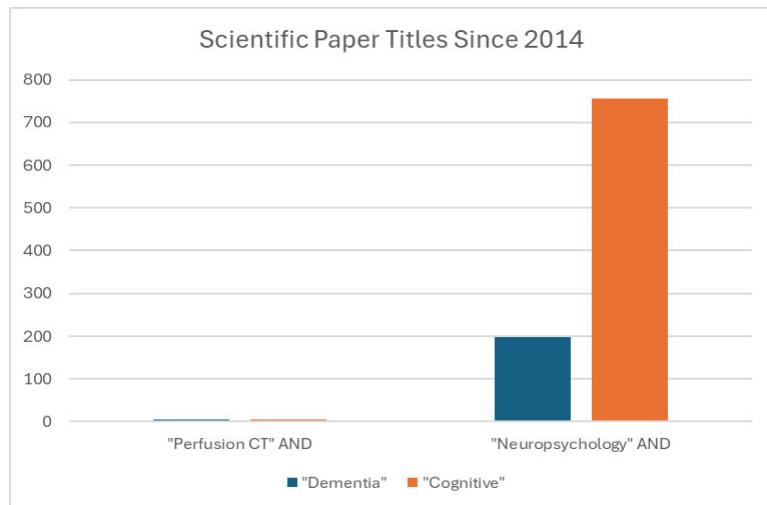
Perfusion CT has been used to differentiate between different types of pathology, but it is not used in a clinical setting to diagnose cognitive impairment on its own. Dr. Filler cited a study that examined the possible use of Perfusion CT in this way, but that same study also stated:

"[The] role of PCT in evaluation of dementias is still at a nascent stage."[37]

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[32] PubMed is a database created by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM), a branch of the National Institutes of Health (NIH). It was designed to offer access to citations (abstracts) from biomedical journals. (Canese, K., & Weis, S. (2013). PubMed: the bibliographic database. *The NCBI Handbook*, *2*(1).) It has become the most popular and one of the most reliable web resources for clinicians and researchers to find scientific research. (Falagas, M. E., Pitsouni, E. I., Malietzis, G. A., & Pappas, G. (2008). Comparison of PubMed, Scopus, web of science, and Google scholar: strengths and weaknesses. *The FASEB Journal*, *22*(2), 338-342.)

[33] Using the search terms "("Perfusion CT"[Title]) AND ("dementia"[Title])" or "("CT Perfusion"[Title]) AND ("dementia"[Title])"

[34] Using the search terms "("Perfusion CT"[Title]) AND ("cognitive"[Title])" or "("CT Perfusion"[Title]) AND ("cognitive"[Title])"

[35] Using the term "(neuropsycholog*[Title]) AND ("dementia"[Title])"

[36] Using the term "(neuropsycholog*[Title]) AND ("cognitive"[Title])"

[37] Dash, S., Agarwal, Y., Jain, S., Sharma, A., & Chaudhry, N. (2023). Perfusion CT imaging as a diagnostic and prognostic tool for dementia: prospective case–control study. *Postgraduate Medical Journal*, *99*(1170), 318-325.

Research methods involving neuroimaging technologies like Perfusion CT in the evaluation of cognitive impairment "still lack the level of precision and insight needed for bringing neuroimaging tools into clinical care contexts,"[38] and "further refinement of parameters is needed."[39] Biomarkers (e.g., blood tests, neuroimaging results) also "do not provide any certainty about a person's future mental status."[40] Normal neuroimaging does not preclude impairment, as individuals with normal neuroimaging findings can go on to exhibit significant signs of cognitive impairment[41] due to conditions such as lymphoma,[42] brain cancer,[43] and cerebellar ataxia,[44] among others. Because individuals with normal or inconclusive neuroimaging are sometimes later found to have definitive signs of pathology,[45] these scans are not definitive "pictures" of someone's actual neurological or cognitive functioning that can be the sole basis to rule out cognitive impairment.

Few studies have directly addressed the effectiveness of using Perfusion CT to diagnose dementia. In studies that have done so, neuropsychological testing was used as the gold standard comparison. For example, in a 2021 study cited by Dr. Filler in his report, Dash and colleagues found Perfusion CT to be helpful in differentiating vascular dementia from Alzheimer's disease and that Perfusion parameters showed positive correlation with MoCA (cognitive test) scores; however, the results of this study used DSM-5 diagnosis[46] as the basis for determining the diagnostic groups in the first place.[47] That is, research done to determine if

[38] Etkin, A. (2019). A reckoning and research agenda for neuroimaging in psychiatry. *American Journal of Psychiatry*, *176*(7), 507-511.

[39] Thirugnanachandran, T., Aitchison, S. G., Lim, A., Ding, C., Ma, H., & Phan, T. (2023). Assessing the diagnostic accuracy of CT Perfusion: a systematic review. *Frontiers in Neurology*, *14*, 1255526.

[40] Hoffman, S. (2022). Cognitive decline and the workplace. *Wake Forest Law Review*, *57*, 115.

[41] Sutherland, M., Kirk, A., Karunanayake, C. P., O'Connell, M. E., & Morgan, D. G. (2022). What happens to the worried well? Follow-up of subjective cognitive impairment. *Canadian Journal of Neurological Sciences*, *49*(1), 84-92.

[42] Richie, M. B., Guterman, E. L., Shah, M. P., & Cha, S. (2022). Susceptibility-weighted imaging of intravascular lymphoma of the central nervous system. *JAMA Neurology*, *79*(1), 86-87.

[43] Thaler, P. B., Li, J. Y., Isakov, Y., Black, K. S., Schulder, M., & Demopoulos, A. (2012). Normal or non-diagnostic neuroimaging studies prior to the detection of malignant primary brain tumors. *Journal of Clinical Neuroscience*, *19*(3), 411-414.

[44] Esmail, S. (2018). Cerebellar ataxia but normal neuroimaging: now what. *Journal of Medical Clinical Research and Reviews*, *2*(6), 1-5.

[45] Restrepo-Martinez, M., Ruiz-Garcia, R., Houpt, J., Ang, L. C., Chaudhari, S., & Finger, E. (2024). The diagnostic challenges of late-onset neuropsychiatric symptoms and early-onset dementia: A clinical and neuropathological case study. *Cognitive and Behavioral Neurology*, 10-1097.

[46] As stated in the DSM-5, "Neuropsychological testing, with performance compared with norms appropriate to the patient's age, educational attainment, and cultural background, is part of the standard evaluation of NCDs and is particularly critical in the evaluation of mild NCD." The criteria require documentation of "impairment in cognitive performance, preferably documented by standardized neuropsychological testing or, in its absence, another quantified clinical assessment," and it is not at all indicated that a brain scan would be an appropriate substitution.
American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Publishing.

[47] "25 patients presenting with cognitive impairment and diagnosed as dementia as per the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM- V) criteria were included. They were assigned to either VaD or AD subgroup as per DSM-V criteria for each."
Dash, S., Agarwal, Y., Jain, S., Sharma, A., & Chaudhry, N. (2023). Perfusion CT imaging as a diagnostic and prognostic tool for dementia: prospective case–control study. *Postgraduate Medical Journal*, *99*(1170), 318-325.
As shown in *Section 1.5* below, the DSM-5-TR criteria specifically recommend neuropsychological testing.

Perfusion CT is a reliable way to diagnose dementia (which is still in its nascency) currently relies on more generally accepted methods that involve neuropsychological testing to determine whether the subjects actually suffered from cognitive impairment.

The diagnostic criteria for major or mild neurocognitive disorder (i.e., "dementia") in the DSM-5-TR involve neuropsychological testing or another qualified assessment (which would not be brain scan by itself). The DSM-5-TR states, "Neuropsychological testing, with performance compared with norms appropriate to the individual's age, sex, educational attainment, and cultural background, is part of the standard evaluation of NCDs [neurocognitive disorders] and is particularly critical in the evaluation of mild NCD." [48] Perfusion CT is not mentioned in the DSM-5-TR criteria, nor is it used as a stand-alone diagnostic criterion in international consensus criteria used by clinicians to diagnose Alzheimer's disease.[49] The DSM-5-TR states that neuroimaging studies can be helpful "[i]n distinguishing among etiological subtypes," [50] but it is not used for diagnosis by itself. Researchers using neuroimaging have highlighted the potential usefulness of the technology, especially in distinguishing between different types of dementia, but they are careful to indicate that this technology "should not be used in isolation, rather as an adjunct, and interpreted in the context of clinical information and paraclinical test results."[51] More pointedly, the main role of neuroimaging in the study of dementia is often isolated to describing the brain, not diagnosing it.[52,53]

While, as Dr. Filler cited, there have been studies showing *potential* biomarkers for frontotemporal dementia,[54] the actual diagnosis of frontotemporal dementia remains a clinical one (i.e., made by a physician rather than the presence of a single biomarker) and typically involves neuropsychological testing as an

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[48] American Psychiatric Association. (2022). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., text rev.). American Psychiatric Publishing.

[49] e.g., Albert, M. S., DeKosky, S. T., Dickson, D., Dubois, B., Feldman, H. H., Fox, N. C., ... & Phelps, C. H. (2013). The diagnosis of mild cognitive impairment due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. *Focus*, *11*(1), 96-106.

[50] American Psychiatric Association. (2022). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., text rev.). American Psychiatric Publishing.

[51] Yeo, J. M., Lim, X., Khan, Z., & Pal, S. (2013). Systematic review of the diagnostic utility of SPECT imaging in dementia. *European Archives of Psychiatry and Clinical Neuroscience*, *263*, 539-552.

[52] Hachinski, V., Iadecola, C., Petersen, R. C., Breteler, M. M., Nyenhuis, D. L., Black, S. E., ... & Leblanc, G. G. (2006). National Institute of Neurological Disorders and Stroke–Canadian stroke network vascular cognitive impairment harmonization standards. *Stroke*, *37*(9), 2220-2241.

[53] Bigler, E. D. (2017). Structural neuroimaging in neuropsychology: History and contemporary applications. *Neuropsychology*, *31*(8), 934.

[54] Pasternak, M., Mirza, S. S., Luciw, N., Mutsaerts, H. J., Petr, J., Thomas, D., ... & Deramecourt, V. (2024). Longitudinal cerebral Perfusion in presymptomatic genetic frontotemporal dementia: GENFI results. *Alzheimer's & Dementia*, *20*(5), 3525-3542.

essential part of the diagnosis.[55,56,57,58] Thus, simply undergoing a brain scan is not a replacement for standardized, reliable, and widely accepted methods (i.e., neuropsychological testing) to assess cognitive functioning.[59]

> **SECTION 1.4:** Dr. Filler mischaracterized the objective nature and accepted practice of neuropsychological testing for the assessment of cognitive impairment.

Dr. Filler offered numerous statements about neuropsychology without citation. These included statements that neuropsychology is "not tethered to neuroanatomy or neurophysiology,"[60] is "subjective and rooted in a testing framework arising in the 16th century,"[61] and "is non-medical, not administered by physicians, and…ultimately cannot serve as an objective basis for assessment."[62] These statements are not accurate. As described above, neuropsychological testing is recognized as an essential component in diagnostic criteria for cognitive impairment[63,64,65] and continues to be a widely recognized scientific process to measure cognitive abilities.

Neuropsychological assessment involves the administration of a group of cognitive tests that directly measure abilities such as memory, attention, language, executive functioning, spatial abilities, and motor abilities. The tests are standardized, and results are determined by comparing to known populations and/or those of the same age, sex, and/or educational attainment. Standardized and reliable cognitive tests are needed, as intuition and clinical judgment alone are also not a sufficient replacement for neuropsychological testing.[66]

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[55] Kamath, V., Chaney, G. A. S., DeRight, J., & Onyike, C. U. (2019). A meta-analysis of neuropsychological, social cognitive, and olfactory functioning in the behavioral and language variants of frontotemporal dementia. *Psychological Medicine, 49*(16), 2669-2680.

[56] Mendez, M. F., Shapira, J. S., McMurtray, A., Licht, E., & Miller, B. L. (2007). Accuracy of the clinical evaluation for frontotemporal dementia. *Archives of Neurology, 64*(6), 830-835.

[57] Gorno-Tempini, M. L., Hillis, A. E., Weintraub, S., Kertesz, A., Mendez, M., Cappa, S. F., ... & Grossman, M. (2011). Classification of primary progressive aphasia and its variants. *Neurology, 76*(11), 1006-1014.

[58] Rascovsky, K., Hodges, J. R., Knopman, D., Mendez, M. F., Kramer, J. H., Neuhaus, J., ... & Miller, B. L. (2011). Sensitivity of revised diagnostic criteria for the behavioural variant of frontotemporal dementia. *Brain, 134*(9), 2456-2477.

[59] Lopez, O. L. (2013). Mild cognitive impairment. *Continuum: Lifelong Learning in Neurology, 19*(2), 411-424.

[60] Filler, *Consultation Report*, at 8.

[61] Filler, *Consultation Report*, at 26.

[62] Filler, *Consultation Report*, at 32.

[63] American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). American Psychiatric Publishing.

[64] Albert, M. S., DeKosky, S. T., Dickson, D., Dubois, B., Feldman, H. H., Fox, N. C., ... & Phelps, C. H. (2013). The diagnosis of mild cognitive impairment due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. *Focus, 11*(1), 96-106.

[65] Langa, K. M., & Levine, D. A. (2014). The diagnosis and management of mild cognitive impairment: a clinical review. *JAMA, 312*(23), 2551-2561.

[66] Bouwmans, A. E., & Weber, W. E. (2012). Neurologists' diagnostic accuracy of depression and cognitive problems in patients with parkinsonism. *BMC Neurology, 12*, 1-6.

Neuropsychological assessment is a cornerstone of measuring cognitive abilities and is the expected avenue for exploring potential cognitive deficits as they relate to a potential workplace problem. Neuropsychological assessment involves comprehensive, objective, research-based methods for measuring the presence and extent of cognitive functioning. Neuropsychologists are trained to gather relevant information in a standardized manner and assess brain functioning by psychometric measurements that are compared to known populations. Results are used in diagnosis and treatment plans, and the particular training of neuropsychologists allows them to determine non-neurological sources of cognitive problems (e.g., stress, depression, anxiety, other medical conditions) as well.[67,68,69]

Neuropsychological testing is the industry standard for the objective assessment of cognitive functioning in research and clinical arenas, and it is a central component of the diagnostic criteria (see *Section 1.5*) for many neurological conditions. In addition to diagnosis of cognitive impairment in general, neuropsychological testing has known benefits in distinguishing between normal aging, mild cognitive impairment, and early dementia.[70]

As Reul and colleagues (2016) stated,

> *"Standardized neuropsychological assessment is essential to assess the degree and profile of cognitive dysfunctions for clinical diagnosis."*[71]

According to Galvin and Sadowsky (2012),

> *"Neuropsychological testing, with performance compared with norms appropriate to the individual's age, sex, educational attainment, and cultural background, is part of the standard evaluation of [neurocognitive disorders] and is particularly critical in the evaluation of mild [neurocognitive disorder]."*[72]

This is reflected in standard medical practice. Once cognitive impairment is affirmed by a thorough history and cognitive test data, a clinician may consider further testing such as an MRI, FDG-PET scan, or CSF

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[67] Begali, V. L. (2020). Neuropsychology and the dementia spectrum: Differential diagnosis, clinical management, and forensic utility. *NeuroRehabilitation*, *46*(2), 181-194.

[68] Koay, J. M., Spat-Lemus, J., Cornwell, M. A., Sacks-Zimmerman, A., Mandelbaum, S., Kohn, A., ... & Bender, H. A. (2023). The evolving need for neuropsychology in neurosurgical settings: Challenges facing transformative care. *World Neurosurgery*, *170*, 277-285.

[69] Donders, J. (2020). The incremental value of neuropsychological assessment: A critical review. *The Clinical Neuropsychologist*, *34*(1), 56-87.

[70] Jacova, C., Kertesz, A., Blair, M., Fisk, J. D., & Feldman, H. H. (2007). Neuropsychological testing and assessment for dementia. *Alzheimer's & Dementia*, *3*(4), 299-317.

[71] Reul, S., Johnen, A., Duning, T., & Lohmann, H. (2016). EP 122. The effectiveness of standard neuropsychological testing to differentiate behavioral variant of frontotemporal dementia (bvFTD) from Alzheimer's Dementia (AD)–A retrospective clinical approach. *Clinical Neurophysiology*, *127*(9), e292.

[72] Galvin, J. E., & Sadowsky, C. H. (2012). Practical guidelines for the recognition and diagnosis of dementia. *The Journal of the American Board of Family Medicine*, *25*(3), 367-382

analysis to determine a cause for impairment as it relates to treatment,[73,74,75] but these methods are not used as the sole basis for diagnosis and decision-making and are not a replacement for objective cognitive testing.

Neuropsychological tests are used to assess for impairment in other positions of high responsibility such as physicians and pilots.[76,77] The FAA has a specialized program involving neuropsychological assessment for pilots with suspected cognitive impairment, and these tests typically use their own "pilot norms" rather than solely assessing performance by age and education.[78] In pilots, neuropsychological test scores have shown strong validity in effectively addressing understanding, recall, and problem solving that was not better explained by experience alone.[79] Similar to aging attorneys,[80] aging physicians are often hesitant to disclose medical concerns or self-monitor their symptoms,[81] and due to their high intelligence they necessitate more comprehensive methods than a simple cognitive screening measure.[82,83] Thus, when considering possible cognitive impairment in a highly educated person in a position of high responsibility, a comprehensive neuropsychological evaluation is warranted.

Neuropsychological evaluation is also specifically required by the Office of Personnel Management (OPM) when mental fitness is at issue. OPM regulations for documentation of a "medical condition that affects safe and efficient performance" requires that a "diagnosis or clinical impression must be justified according to established diagnostic criteria and the conclusions and recommendations must be consistent with generally accepted professional standards."[84] This information may include medical history, medical tests, "and, in the case of psychiatric examination or psychological assessment, the findings of a mental status examination and/or the results of psychological tests, if appropriate." Regarding the applicability of neuropsychological testing, 5 CFR 339.301(e)(2) recognizes the need for a licensed psychologist or clinical neuropsychologist when there is an inquiry into a person's mental fitness. Thus, Dr. Filler's assertions that neuropsychology is

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[73] Petersen, R. C. (2016). Mild cognitive impairment. *CONTINUUM: Lifelong Learning in Neurology*, 22(2), 404-418.

[74] Daffner, K. R., Gale, S. A., Barrett, A. M., Boeve, B. F., Chatterjee, A., Coslett, H. B., ... & Kaufer, D. I. (2015). Improving clinical cognitive testing: report of the AAN Behavioral Neurology Section Workgroup. *Neurology*, 85(10), 910-918.

[75] Budson, A. E., & Solomon, P. R. (2012). New diagnostic criteria for Alzheimer's disease and mild cognitive impairment for the practical neurologist. *Practical Neurology*, 12(2), 88-96.

[76] Vuorio, A., Suhonen-Malm, A. S., Budowle, B., & Bor, R. (2024). European and US Aeromedical Authority Guidance for Neurocognitive Evaluation of Airline Pilots With Mental Disorders. *Aviation Psychology and Applied Human Factors*.

[77] Federal Aviation Administration. (2024, June 26). Neurocognitive conditions. Retrieved January 06, 2025, from https://www.faa.gov/ame_guide/dec_cons/disease_prot/neurocog

[78] Federal Aviation Administration. (2024, June 26). *Specifications for neuropsychological evaluations for potential neurocognitive impairment*. https://www.faa.gov/ame_guide/media/NPevalspecs_neurocog_impairment.pdf

[79] Graver, C. J., Armistead-Jehle, P., & Fritch, A. M. (2021). Neuropsychologist's guide to aeromedical examinations in the military. *Military Behavioral Health*, 9(1), 89-100.

[80] Badger, M. J., Jalonen, E., Long, M., & Harrell, T. L. (2015). Concerns about cognitive impairment and older lawyers. *Experience*, 25, 30.

[81] District of Columbia Bar. (2019, October). *Ethics Opinion 377*. Retrieved January 06, 2025, from https://dcbar.org/for-lawyers/legal-ethics/ethics-opinions-210-present/ethics-opinion-377

[82] Williams, B. W., Flanders, P., Grace, E. S., Korinek, E., Welindt, D., & Williams, M. V. (2017). Assessment of fitness for duty of underperforming physicians: The importance of using appropriate norms. *PloS One*, 12(10), e0186902.

[83] Rentz, D. M., Huh, T. J., Faust, R. R., Budson, A. E., Scinto, L. F., Sperling, R. A., & Daffner, K. R. (2004). Use of IQ-adjusted norms to predict progressive cognitive decline in highly intelligent older individuals. *Neuropsychology*, 18(1), 38.

[84] Code of Federal Regulations, Title 5, § 339.104 (2023). https://www.ecfr.gov

a subjective field based on outdated methods is not in line with clinical practice, research, diagnostic standards in the field, or governmental guidelines.

> **SECTION 1.5:** There are official criteria and guidelines used to diagnose cognitive impairment, and they do not involve simply administering a Perfusion CT scan.

The consensus diagnostic criteria for mild cognitive impairment due to Alzheimer's disease require "objective evidence of impairment in one or more cognitive domains,"[85] and this refers to neuropsychological testing. Similarly, diagnosis of Alzheimer's disease is typically based on either DSM-5-TR, the National Institute of Neurological, Communicative Disorders and Stroke–Alzheimer Disease and Related Disorders Association (NINCDS-ADRDA) criteria, or the National Institute on Aging-Alzheimer's Association (NIA-AA) criteria.[86] All of these criteria include neuropsychological testing. The NINCDS-ADRDA criteria support a clinical diagnosis of Alzheimer's even in the absence of a definitive diagnostic biomarker (e.g., a neuroimaging study),[87] meaning that the diagnosis can be made using neuropsychological test results without a biomarker, but not vice-versa.

The NIA-AA core criteria state that "[Alzheimer's disease] dementia is fundamentally a clinical diagnosis. To make a diagnosis of AD dementia with biomarker support, the core clinical diagnosis of AD dementia must first be satisfied." The core clinical criteria include problems functioning at work or other usual activities and cognitive impairment detected and diagnosed through a combination of "history-taking from the patient and a knowledgeable informant" along with an objective cognitive assessment. The objective cognitive assessment is expected to be neuropsychological testing whenever possible. The NIA-AA criteria leave room for a "bedside instrument" (e.g., MMSE, MoCA) to be used, but the criteria also state that "Neuropsychological testing should be performed when the routine history and bedside mental status examination cannot provide a confident diagnosis,"[88] and thus the criteria emphasize the preferential use of neuropsychological testing.[89] As described in other areas of this section and in *Section 2*, the evaluations done with Judge Newman have not been sufficient to render a confident diagnosis, and further testing is indicated. Cognitive and behavioral impairment defined by the NIA-AA criteria include problems with memory (e.g., repetitive questions, misplacing personal belongings, forgetting recent events), reasoning

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[85] Albert, M. S., DeKosky, S. T., Dickson, D., Dubois, B., Feldman, H. H., Fox, N. C., ... & Phelps, C. H. (2013). The diagnosis of mild cognitive impairment due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. *Focus*, 11(1), 96-106.

[86] Cerullo, E., Quinn, T. J., McCleery, J., Vounzoulaki, E., Cooper, N. J., & Sutton, A. J. (2021). Interrater agreement in dementia diagnosis: A systematic review and meta-analysis. *International Journal of Geriatric Psychiatry*, 36(8), 1127-1147.

[87] Galvin, J. E., & Sadowsky, C. H. (2012). Practical guidelines for the recognition and diagnosis of dementia. *The Journal of the American Board of Family Medicine*, 25(3), 367-382

[88] McKhann, G. M., Knopman, D. S., Chertkow, H., Hyman, B. T., Jack Jr, C. R., Kawas, C. H., ... & Phelps, C. H. (2011). The diagnosis of dementia due to Alzheimer's disease: Recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. *Alzheimer's & dementia*, 7(3), 263-269.

[89] Weinstein, A., Gujral, S., Butters, M., Bowie, C., Fischer, C., Flint, A., ... & PACt-MD Study Group. (2020). Diagnosing cognitive decline: comparing NIA-AA to DSM-5 approaches. *The American Journal of Geriatric Psychiatry*, 28(4), S79-S80.

(e.g., poor planning of complex or sequential activities), visuospatial abilities (e.g., recognizing objects in direct view, inability to operate simple instruments), language (e.g., difficulty thinking of common words while speaking, writing errors), and personality changes (e.g., uncharacteristic mood fluctuations).[90]

In the DSM-5-TR, conditions related to cognitive decline are covered under the umbrella of "neurocognitive disorders." As elucidated below, the DSM-5-TR criteria specifically require the use of a quantified clinical assessment—preferably standardized neuropsychological testing—for the diagnosis.

> **Table 1.6.1**
> **Evidence of Cognitive decline in DSM-5-TR Criteria for Neurocognitive Disorders (FKA "Dementia")**[83]
>
> Evidence of modest (Mild NCD) or significant (Major NCD) cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual-motor, or social cognition) based on:
> 1. Concern of the individual, a knowledgeable informant, or the clinician that there has been a mild (Mild NCD) or significant (Major NCD) decline in cognitive function; **and**
> 2. A modest (Mild NCD) or substantial (Major NCD) impairment in cognitive performance, **preferably documented by standardized neuropsychological testing** [emphasis added] or, in its absence, another quantified clinical assessment.

Criteria used to diagnose conditions of cognitive impairment do not ignore the utility of biomarkers, but the use of such markers (e.g., results from a CT scan) are typically reserved for differentiation among different sources of dysfunction rather than determination of cognitive impairment itself. For example, in addition to the use of neuropsychological testing as objective evidence to diagnose mild cognitive impairment, the criteria suggest biomarkers to assist in differentiating among different causes of dementia. However, Perfusion CT was not one of the biomarkers indicated, and none of the biomarkers are used in isolation. These diagnostic guidelines require evidence of a cognitive concern from any party and impairment in one or more cognitive domains greater than expected for age and education, as indicated by objective evidence of cognitive decline in the form of neuropsychological testing.[92]

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[90] McKhann, G. M., Knopman, D. S., Chertkow, H., Hyman, B. T., Jack Jr, C. R., Kawas, C. H., ... & Phelps, C. H. (2011). The diagnosis of dementia due to Alzheimer's disease: Recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. *Alzheimer's & dementia*, 7(3), 263-269.
[91] Adapted from the DSM-5-TR for brevity.
[92] Langa, K. M., & Levine, D. A. (2014). The diagnosis and management of mild cognitive impairment: a clinical review. *JAMA*, 312(23), 2551-2561.

> **SECTION 1.6:** Dr. Filler's opinion about Judge Newman's abilities based on a comparison of her activity during his oral arguments in front of her in 2019 and 2022 and his interview of her in 2024 is highly subjective, unscientific, and unreliable.

Dr. Filler's opinion about Judge Newman's abilities based on his analysis of her activity during his oral arguments in front of her in 2019 and 2022[93] is subjective and improper. It is not a tested technique, has not been subject to peer review, has no known potential error rate, has no standards to control its operation, and does not have widespread acceptance within the relevant scientific community.

> **SECTION 1.7:** Dr. Filler's opinion that there was "no material concern that requires further medical testing" was not based on a comprehensive evaluation and ignores common and obvious signs of possible impairment provided in the materials he reviewed.

A fitness for duty evaluation and report should meet the standards of a high-quality evaluation informed by a thorough history, collateral information, job performance data, and psychometric and laboratory testing as needed. [94,95] Similarly, the DC Bar has emphasized the importance of exploring possible mental impairment to determine the extent or presence of such impairment and whether it is chronic or temporary in the context of a fitness for duty evaluation.[96]

With regard to possible memory problems, Dr. Filler primarily relied on Judge Newman's self-report,[97] which is problematic for many reasons. In a fitness for duty evaluation, the employee's self-report should not be taken at face value, and the evaluator "should consider all sources of information, and identify or obtain additional data from others or from documents."[98] If these sources provide discrepant data, that should be reconciled with a more thorough evaluation, as opposed to Dr. Filler's stance ("I do not endeavor to resolve which recollection is more accurate.").[99] Often, the prominent referral question in a neuropsychological fitness for duty evaluation is determine whether documented cognitive impairment is present when there are two opposing viewpoints.

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[93] Filler, *Consultation Report*, at 9.

[94] Anfang, S. A., Faulkner, L. R., Fromson, J. A., & Gendel, M. H. (2005). The American Psychiatric Association's resource document on guidelines for psychiatric fitness-for-duty evaluations of physicians. *Journal of the American Academy of Psychiatry and the Law Online*, *33*(1), 85-88.

[95] Finlayson, A. R., Dietrich, M. S., Neufeld, R., Roback, H., & Martin, P. R. (2013). Restoring professionalism: The physician fitness-for-duty evaluation. *General Hospital Psychiatry*, *35*(6), 659-663.

[96] District of Columbia Bar. (2019, October). *Ethics Opinion 377*. Retrieved January 06, 2025, from https://dcbar.org/for-lawyers/legal-ethics/ethics-opinions-210-present/ethics-opinion-377

[97] Dr. Filler's handwritten notes indicate that Judge Newman denied experiencing problems related to immediate memory and long-term memory.

[98] Wettstein, R. M. (2013). Fitness-for-duty evaluations. In L. H. Gold & D. L. Vanderpool (Eds.), *Clinical Guide to Mental Disability Evaluations* (pp. 309–336). Springer Science + Business Media. https://doi.org/10.1007/978-1-4614-5447-2_12

[99] Filler, *Consultation Report*, at 27.

In attorneys, signs of cognitive impairment can include forgetting information during a hearing or important docket dates, failing to recall settled case law, forgetting colleagues' names, missing calls or meetings despite having an up-to-date calendar, failing to use technology in a manner that was previously done, and unexplained changes to mood and demeanor.[100] Several of these same issues were presented in the materials from the Special Committee that Dr. Filler reviewed (see *Section 2*).

Careful history taking is especially important in a fitness for duty evaluation involving potential cognitive problems in the elderly to help distinguish normal aging from early signs of a more serious disease process.[101] Because the individual with suspected cognitive problems may not be not the most reliable source, it is important to consider the observations of outside observers. The lack of awareness of illness is indeed a known symptom of Alzheimer's disease and other dementias, and it is referred to as *anosognosia*.[102,103,104,105,106] Thus, in an evaluation for cognitive impairment, it is customary to rely not only on the report of the individual, but also others around them (known as "collateral informants" in the clinical world). Considering the *sui generis* nature of this case, access to informant sources may be limited to the experiences of those who interact with Judge Newman at work.

Dr. Filler did not give proper weight to descriptions of concerning behaviors from Judge Newman's coworkers. Several individuals working around Judge Newman described events that were clearly concerning (see *Section 2.1*), and while they do not lead to a definitive conclusion of cognitive impairment on their own, they should undoubtedly be considered in an evaluation for cognitive impairment. Instead, Dr. Filler dismissed the numerous affidavits written by individuals at Judge Newman's workplace, stating, "I do not endeavor to resolve which recollection is more accurate."[107] The information provided in these affidavits is important collateral information that is routinely used in the diagnosis of possible cognitive impairment. Even if one were to take Dr. Filler's approach regarding the conflicting reports, objective, standardized, and widely accepted neuropsychological testing is best suited to objectively identify cognitive concerns when an

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[100] Sauber, J. (2020). Lawyers with dementia. *Bench & Bar of Minnesota*, 77(9).

[101] Galvin, J. E., & Sadowsky, C. H. (2012). Practical guidelines for the recognition and diagnosis of dementia. *The Journal of the American Board of Family Medicine*, 25(3), 367-382

[102] Cacciamani, F., Houot, M., Gagliardi, G., Dubois, B., Sikkes, S., Sánchez-Benavides, G., ... & Epelbaum, S. (2021). Awareness of cognitive decline in patients with Alzheimer's disease: a systematic review and meta-analysis. *Frontiers in Aging Neuroscience*, 13, 697234.

[103] Prigatano, G. P., Russell, S., & Meites, T. M. (2024). Studying lack of awareness of cognitive decline in neurodegenerative diseases requires measures of both anosognosia and denial. *Frontiers in Aging Neuroscience*, 15, 1325231.

[104] Johansson, M. M., Marcusson, J., & Wressle, E. (2015). Cognitive impairment and its consequences in everyday life: experiences of people with mild cognitive impairment or mild dementia and their relatives. *International psychogeriatrics*, 27(6), 949-958.

[105] Cacciamani, F., Sambati, L., Houot, M., Habert, M. O., Dubois, B., & Epelbaum, S. (2020). Awareness of cognitive decline trajectories in asymptomatic individuals at risk for AD. *Alzheimer's Research & Therapy*, 12, 1-10.

[106] Hoffman, S. (2022). Cognitive decline and the workplace. *Wake Forest Law Review*, 57, 115.

[107] Filler, *Consultation Report*, at 27.

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informant is not available (e.g., "Neuropsychological test performance can provide insight into functional abilities, particularly in the absence of an informant").[108]

Dr. Filler casted doubt that "any further testing can shed additional light on the issues in dispute,"[109] mainly because it was his opinion that "Perfusion CT is the most modern detailed test available for an objective testing assessment"[110] and meets the need presented by the Special Committee. Dr. Filler supplemented his own opinion with the opinions by Drs. Rothstein and Carney, which are discussed separately below. As described in earlier sections, Dr. Filler's conclusion that no further testing is warranted based on presently available information is flawed and not in step with the accepted method of determining possible cognitive impairment in the workplace or otherwise. With this logic, Dr. Filler also implied that a definitive diagnosis of dementia would be the only way for cognitive problems to interfere with Judge Newman's functioning at work (e.g., Dr. Filler stated, "Moreover, there is exceptionally high flow bilaterally in the hippocampus which rules out all of the known causes of MCI (mild cognitive impairment) and any dementias"),[111] which fails to consider numerous medical conditions that can lead to cognitive impairment.

Cognitive impairment can stem from conditions other than dementia[112] including depression, adverse effects of medications, drug or alcohol abuse, space-occupying lesions, normal pressure hydrocephalus, hypertension, high cholesterol, and diabetes, metabolic conditions, and endocrinal conditions like hypothyroidism, and nutritional conditions like vitamin B-12 deficiency.[113,114,115,116] Dr. Filler stated that Judge Newman is prescribed medications for ███████████████████ ███████████ ███ ███████ ██████ ████ ███████ ███████ █ ███████ ███████ ████ ██████████████████████████)[117] and has a history of ███████████

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[108] Ashendorf, L., Alosco, M. L., Bing-Canar, H., Chapman, K. R., Martin, B., Chaisson, C. E., ... & Stern, R. A. (2018). Clinical utility of select neuropsychological assessment battery tests in predicting functional abilities in dementia. *Archives of Clinical Neuropsychology*, *33*(5), 530-540.

[109] Filler, *Consultation Report*, at 41.

[110] Filler, *Consultation Report*, at 41.

[111] Filler, *Consultation Report*, at 40.

[112] Sauber, J. (2020). Lawyers with dementia. *Bench & Bar of Minnesota*, *77*(9).

[113] Tripathi, M., & Vibha, D. (2009). Reversible dementias. *Indian Journal of Psychiatry*, *51*(Suppl1), S52-S55.

[114] Hoffman, S. (2022). Cognitive decline and the workplace. *Wake Forest Law Review*, *57*, 115.

[115] Budson, A. E., & Solomon, P. R. (2012). New diagnostic criteria for Alzheimer's disease and mild cognitive impairment for the practical neurologist. *Practical Neurology*, *12*(2), 88-96.

[116] World Health Organization. (2019). *Risk Reduction of Cognitive Decline and Dementia: WHO Guidelines* (No. WHO/MSD/MER/19.2). World Health Organization. https://www.who.int/publications/i/item/9789241550543

[117] Filler, *Consultation Report*, at 22 and 23.

██ , which are all associated with high risk for cognitive impairment.[118,119,120,121,122,123,124]

Dr. Filler indicated that in addition to his own examination of Judge Newman, he reviewed the evidence compiled by the Special Committee (described in *Section 2* below) and Judge Newman's medical history dating back to 2021. It was his opinion that "[H]er neurological workup was entirely normal, [and] the records do not appear to be contributory in any way"[125] to cognitive impairment in question. This is not at all consistent with the information that was available to him,[126] as further described in *Section 2*, and Judge Newmans's records indicate numerous possible sources and examples of possible cognitive impairment.

> **SECTION 1.8:** Assessing potential cognitive impairment in the workplace requires a comprehensive approach that is tailored to the needs of a job.

Cognitive impairment can and does occur in the absence of a dementia diagnosis. For example, in the condition known as "cognitive impairment not dementia" or CIND, cognitive problems are present beyond what is considered to be normal aging but not at the level of dementia; that is, someone can be diagnosed with significant cognitive impairment without meeting criteria for dementia. CIND is considered to have an especially high prevalence in the "non-demented oldest-old,"[127] with some estimates finding the condition

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[125] Filler, *Consultation Report*, at 4.
[126] Filler, *Consultation Report*, at 17.
[127] Peltz, C. B., Corrada, M. M., Berlau, D. J., & Kawas, C. H. (2012). Cognitive impairment in nondemented oldest-old: prevalence and relationship to cardiovascular risk factors. *Alzheimer's & Dementia, 8*(2), 87-94.

in over 25 to 41% of those over 85 years of age.[128,129,130,131] According to the Alzheimer's Association, 33.4% of people over the age of 85 have Alzheimer's dementia,[132] and this figure does not account for other types of dementia or cognitive impairment. This is not meant to imply that everyone over the age of 85 has cognitive impairment, but individuals in this age range, in combination with other factors such as concerns from collateral informants, are substantially more at risk for cognitive decline and indicate the need for further evaluation when present.

Further, the outcome of a neuropsychological fitness for duty evaluation is not necessarily a diagnosis; it is a determination about whether a condition is present that is likely to interfere with the completion of an individual's usual job tasks. This means that an employee can be unfit for duty even without a severe diagnosis such as dementia. Psychological fitness for duty evaluations are often ordered when there is a possible cognitive, psychiatric, or behavioral condition that is affecting one's ability to carry out their usual job tasks. The goal of the evaluation is to determine whether there is a condition present that would impair such tasks and whether certain limitations or restrictions are present. [133] Thus, Dr. Filler's determination that no signs of dementia are present in Judge Newman—even if his methods were valid—would still not preclude the possibility of cognitive impairment, and Perfusion CT is not the standard, accepted, and validated way to determine if cognitive deficits are present.

When considering the possibility of cognitive impairment related to a person's ability to work (i.e., neuropsychological fitness for duty), assessment of possible impairment is more important than a diagnosis, as an individual will begin to exhibit concerning symptoms of cognitive decline prior to meeting full criteria for the condition.[134] In a fitness for duty evaluation for a physician experiencing possible cognitive problems, it is recommended that the mental status examination be expanded, and the individuals should be referred for "psychological, neuropsychological, medical, laboratory, or other examinations or tests."[135] In a neuropsychological fitness for duty examination, the employer's questions about risk in a position of high responsibility center on the potential impact of the employee's neuropathology in the workplace. These

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[128] Woodford, H. J., & George, J. (2007). Cognitive assessment in the elderly: a review of clinical methods. *QJM: An International Journal of Medicine*, *100*(8), 469-484.

[129] Fei, M., Qu, Y. C., Wang, T., Yin, J., Bai, J. X., & Ding, Q. H. (2009). Prevalence and distribution of cognitive impairment no dementia (CIND) among the aged population and the analysis of socio-demographic characteristics: the community-based cross-sectional study. *Alzheimer Disease & Associated Disorders*, *23*(2), 130-138.

[130] Yaffe, K., Middleton, L. E., Lui, L. Y., Spira, A. P., Stone, K., Racine, C., ... & Kramer, J. H. (2011). Mild cognitive impairment, dementia, and their subtypes in oldest old women. *Archives of Neurology*, *68*(5), 631-636.

[131] Peltz, C. B., Corrada, M. M., Berlau, D. J., & Kawas, C. H. (2012). Cognitive impairment in nondemented oldest-old: prevalence and relationship to cardiovascular risk factors. *Alzheimer's & Dementia*, *8*(2), 87-94.

[132] Alzheimer's Association (2024). 2024 Alzheimer's disease facts and figures. *Alzheimer's & Dementia, 20*, 3708-3821. https://doi.org/10.1002/alz.13809

[133] Miller, L. (2007). The psychological fitness-for-duty evaluation. *FBI Law Enforcement Bulletin*, *76*, 10.

[134] Galvin, J. E., & Sadowsky, C. H. (2012). Practical guidelines for the recognition and diagnosis of dementia. *The Journal of the American Board of Family Medicine*, *25*(3), 367-382

[135] Anfang, S. A., Faulkner, L. R., Fromson, J. A., & Gendel, M. H. (2005). The American Psychiatric Association's resource document on guidelines for psychiatric fitness-for-duty evaluations of physicians. *Journal of the American Academy of Psychiatry and the Law Online*, *33*(1), 85-88.

issues typically concern the cognitive abilities of the employee and whether these can be ameliorated so that the particular job can be performed without limitations (i.e., things an individual cannot do due to their condition) or restrictions (i.e., things an individual should not do to avoid harm or worsening their condition).[136]

> **Conclusions from Section 1:**
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> As described above, Dr. Filler overstated the reliability, validity, and general acceptance of using Perfusion CT to rule out cognitive impairment. He made incorrect statements about neuropsychology being completely subjective and Perfusion CT being completely objective, and he neglected to take into account that neuropsychological test scores are engrained in the very definitions of various cognitive disorders according to their diagnostic criteria. Dr. Filler relied on Judge Newman's self-report and did not properly weigh the concerns of those around her. Considering such collateral source information is standard procedure in an evaluation for cognitive impairment. Dr. Filler also did not take into account that other conditions aside from dementia could cause potential cognitive impairment. Dr. Filler did not administer a single objective, standardized, or recognized cognitive measure to Judge Newman. His approach of subjectively comparing his impressions of her to his memory of her in an oral argument several years ago is subjective, not recognized, and not standardized. His conclusion that no further evaluation or testing is fundamentally flawed.

SECTION 2: ANALYSIS OF ADDITIONAL MATERIALS

> **SECTION 2.1:** The provided affidavits and declarations highlight concerning signs of possible cognitive decline that warrant further comprehensive investigation with validated methodologies.

Individuals working around Judge Newman for many years have documented concerns about possible decline in her functioning. Acting IT director ▮▮▮▮▮▮ and acting HelpDesk Supervisor ▮▮▮▮▮▮ perceived a significant increase in Judge Newman forgetting how to perform basic tasks that used to be routine for her, and this has reportedly culminated in an increase in help desk calls and frequent assertions that someone was "hacking" her computer despite no evidence of this happening. ▮▮▮▮▮▮ and ▮ colleagues have perceived Judge Newman to have exhibited a change in personality and demeanor including unjustified concerns about being hacked. ▮▮▮▮▮▮▮▮, and ▮▮▮▮▮▮ also provided similar accounts. These observations are especially important because neuropsychiatric symptoms such as delusions and paranoia are often identified as the first manifestation of an underlying neurocognitive disorder, and they

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[136] Chafetz, M. (2019). Fitness for duty examinations. In L. D. Ravdin & H. L. Katzen (Eds.), *Handbook on the Neuropsychology of Aging and Dementia* (pp. 263-272). Springer. https://doi.org/10.1007/978-3-319-93497-6_17

are widely prevalent in individuals with dementia.[137,138] It is common for such symptoms to be persecutory delusions such as delusions of theft,[139,140,141] and more prominent neuropsychiatric symptoms may also make someone more at risk for imminent progression of neurocognitive symptoms.[142,143]

Similarly, ███████████████████████████ stated that Judge Newman had become stuck and repetitive about unrelated topics and appeared to be confused, and distrustful of others. The repetitive nature of Judge Newman's discourse was also corroborated by ███████████, who works as the ████████████ ████████ Human Resources for the United States Court of Appeals for the Federal Circuit. ███████████ included email exchanges in which Judge Newman was repetitive with questions despite being told answers. ███████████, who worked as Judge Newman's paralegal from December 2021 to April 2023, described progressively worsening instances in which Judge Newman had trouble recalling recent events and information, keeping track of case materials, and exhibiting personality changes.

Other materials indicate that Judge Newman later exhibited an apparent lapse in memory related to the departures of two employees of her chambers. On April 19, 2023, Chief Judge Moore authored an email stating that ███████████ was no longer an employee of the Newman chambers. Chief Judge Moore sent another email about the resignation of ███████████ from the Newman chambers about 45 minutes later. Judge Newman replied about an hour after that stating, "I agree that this is appropriate. Please prodess [sic] john's [sic] departure expeditiously." Eight days later, Judge Newman wrote the following email:

> *Judge Moore,*
> *I never released my paralegal* ███████████ *from my chambers staff. His movement to your staff, without consultation with me, violates his confidentiality and other obligations to me. Nor have I released my law clerk* ███████████. *I observe that he is now listed as "law clerk—chambers of* ███████████." *This was not cleared with me, and I was never notified of this move, again in violation of the confidentiality of my chambers, and in violation of my right to law clerk services.*
> *Judge Newman*

[137] Cipriani, G., Danti, S., Vedovello, M., Nuti, A., & Lucetti, C. (2014). Understanding delusion in dementia: a review. *Geriatrics & Gerontology International*, *14*(1), 32-39.

[138] Na, H. R., Kang, D. W., Woo, Y. S., Bahk, W. M., Lee, C. U., & Lim, H. K. (2018). Relationship between delusion of theft and cognitive functions in patients with mild Alzheimer's disease. *Psychiatry Investigation*, *15*(4), 413.

[139] Gallagher, D., Fischer, C. E., & Iaboni, A. (2017). Neuropsychiatric symptoms in mild cognitive impairment: an update on prevalence, mechanisms, and clinical significance. *The Canadian Journal of Psychiatry*, *62*(3), 161-169.

[140] Martin, E., & Velayudhan, L. (2020). Neuropsychiatric symptoms in mild cognitive impairment: a literature review. *Dementia and Geriatric Cognitive Disorders*, *49*(2), 146-155.

[141] Seeman, M. V. (2018). Understanding the delusion of theft. *Psychiatric Quarterly*, *89*(4), 881-889.

[142] Sugarman, M. A., Alosco, M. L., Tripodis, Y., Steinberg, E. G., & Stern, R. A. (2018). Neuropsychiatric symptoms and the diagnostic stability of mild cognitive impairment. *Journal of Alzheimer's disease*, *62*(4), 1841-1855.

[143] Forrester, S. N., Gallo, J. J., Smith, G. S., & Leoutsakos, J. M. S. (2016). Patterns of neuropsychiatric symptoms in mild cognitive impairment and risk of dementia. *The American Journal of Geriatric Psychiatry*, *24*(2), 117-125.

The concerns of others who work around Judge Newman indicated possible serious symptoms of cognitive decline. These concerns are not diagnostic in and of themselves, but are directly in line with the diagnostic definition of a neurocognitive disorder (e.g., Criterion A1 of the DSM-5-TR diagnosis of major neurocognitive disorder, which states, "Concern of the individual, a knowledgeable informant, or the clinician that there has been a significant decline in cognitive function.").[144]

> **SECTION 2.2:** Dr. Rothstein's report does not effectively rule out the presence of possible cognitive decline.

Neurologist Ted Rothstein, MD examined Judge Newman on June 21, 2023.[145] He described her medical history as relevant for a pacemaker, hypertension, hyperlipidemia, and hypothyroidism. As described above, these conditions can be related to cognitive impairment in their own right.

Dr. Rothstein administered a brief cognitive screening measure (Montreal Cognitive Assessment; MoCA) to Judge Newman. The MoCA consists of 30 possible points and includes limited questions about information such as the date, recall of a short list of words after a few minutes, naming of animals, drawing of a clock and a complex shape, alternating between a letter and a number, repeating information heard aloud, performing simple mental calculations, and naming words beginning with a certain letter. The MoCA is widely used in an initial assessment of possible cognitive functioning, especially by neurologists and neuropsychiatrists,[146] but it is not comprehensive enough to be used as the sole basis for a fitness for duty evaluation when potential cognitive problems are at issue.

Cognitive screening measures are not substitutes for comprehensive neuropsychological testing. There are times when a brief instrument such as the MoCA may be used to assess for possible cognitive decline, but, as described in the diagnostic criteria for mild cognitive impairment, "the clinician must be mindful that these screening instruments are insufficient to make the diagnosis."[147] Neuropsychological test results, in contrast, can help the clinician assess whether the level of function is appropriate for the patient's age, sex, and education. The consensus criteria for the determination of vascular cognitive impairment highlight the importance of formal cognitive testing. They state that formal cognitive testing is preferred because brief

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[144] American Psychiatric Association. (2022). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., text rev.). American Psychiatric Publishing.

[145] Ted Rothstein, *Declaration of Ted L. Rothstein, MD*, (unpublished report, 2024) (on file with author).

[146] Siqueira, G. S., Hagemann, P. D. M., Coelho, D. D. S., Santos, F. H. D., & Bertolucci, P. H. (2019). Can MoCA and MMSE be interchangeable cognitive screening tools? A systematic review. *The Gerontologist*, *59*(6), e743-e763.

[147] Petersen, R. C. (2016). Mild cognitive impairment. *CONTINUUM: Lifelong Learning in Neurology*, *22*(2), 404-418.

screening measures "will likely be insensitive to subtle cognitive dysfunction during the early stages of [mild cognitive impairment] and will often yield normal performance."[148]

The lay audience is often under a false assumption that passing a global cognitive screening tool such as the Montreal Cognitive Assessment (MoCA) or the Mini Mental State Examination (MMSE) is akin to a clean bill of cognitive health, but these screening tools are not "dementia tests." Global cognitive screening tools often have limited sensitivity and specificity outside of their demographic normative samples. People with dementia often pass these screens, and people without dementia often fail them.[149,150] The current gold standards for dementia diagnosis involve a holistic assessment that considers numerous converging sources of evidence, including metabolic assays, physical examination to rule out reversible causes, structural neuroimaging and a broad spectrum neuropsychological assessment that covers memory, language, visuospatial functioning, attention, praxis, and others.[151] With regard to cognitive functioning, this is best captured from trained neuropsychologists administering comprehensive, standardized neuropsychological testing with the data obtained being compared to normal population values.[152]

As stated by Daffner and colleagues (2015),

> *"Cognitive testing is essential for evaluating memory and other cognitive complaints associated with neurologic disorders. General cognitive tests, such as the Montreal Cognitive Assessment (MoCA), Addenbrooke's Cognitive Examination–Revised, or Mini-Mental State Examination (MMSE), are useful for screening but have limited diagnostic specificity."* [153]

Similarly, Tannou and colleagues (2021) stated,

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[148] Hachinski, V., Iadecola, C., Petersen, R. C., Breteler, M. M., Nyenhuis, D. L., Black, S. E., ... & Leblanc, G. G. (2006). National Institute of Neurological Disorders and Stroke–Canadian stroke network vascular cognitive impairment harmonization standards. *Stroke*, *37*(9), 2220-2241.

[149] Reilly, J. (2024). Neuropsychology and Politics Collide in the 2024 US Presidential Election: Pitfalls of attacks on age, language, and memory. *Journal of Neuropsychology*.

[150] Spering, C. C., Hobson, V., Lucas, J. A., Menon, C. V., Hall, J. R., & O'Bryant, S. E. (2012). Diagnostic accuracy of the MMSE in detecting probable and possible Alzheimer's disease in ethnically diverse highly educated individuals: an analysis of the NACC database. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*, *67*(8), 890-896.

[151] Reilly, J. (2024). Neuropsychology and Politics Collide in the 2024 US Presidential Election: Pitfalls of attacks on age, language, and memory. *Journal of Neuropsychology*.

[152] Woodford, H. J., & George, J. (2007). Cognitive assessment in the elderly: a review of clinical methods. *QJM: An International Journal of Medicine*, *100*(8), 469-484.

[153] Daffner, K. R., Gale, S. A., Barrett, A. M., Boeve, B. F., Chatterjee, A., Coslett, H. B., ... & Kaufer, D. I. (2015). Improving clinical cognitive testing: report of the AAN Behavioral Neurology Section Workgroup. *Neurology*, *85*(10), 910-918.

> *"Such simple assessments of cognitive functions are not sufficient to assess a phenomenon as complex as decision-making and need to be completed by complementary neuropsychological assessment exploring the different skills involved in decision-making ability."[154]*

Cognitive screens, such as the MoCA, are "generally brief and narrow in scope" and more appropriate for a visit with a primary care physician whereas a neuropsychological assessment is "multidimensional in nature and used for purposes such as identifying primary and secondary diagnoses, determining the nature and severity of a person's cognitive difficulties, determining functional limitations, and planning treatment and rehabilitation."[155] For example, cognitive screening may be used to inform treatment planning but often lacks consideration of contextual factors and does not offer prognostication regarding functional abilities.[156] Hoffman (2022) asserted that "A large number of tools are available to assess cognitive capacities" and that "Thorough neuropsychological testing takes several hours and is considerably more reliable than brief assessments."[157] Screening measures are also inappropriate substitutes for more comprehensive cognitive testing in populations with higher intelligence and/or education. For example, false negative results on the MoCA (i.e., concluding no impairment when impairment was actually present) were especially prevalent in cases of high educational and/or professional levels,[158] and MoCA factors such as educational attainment and intelligence should be taken into account when interpreting results of the MoCA.[159]

The MoCA was the only cognitive test that Dr. Rothstein attempted to administer to Judge Newman, and he was only able to partially administer it due to Judge Newman reportedly being unable to write due to a wrist injury. The MoCA administered to Judge Newman was reportedly adapted to not include subtests involving handwriting due to her broken wrist. Dr. Rothstein stated that "Impaired wrist function does not preclude testing of cognitive function,"[160] yet the only measure he administered—a brief one at that—was not administered in a standardized way due to her inability to write. Dr. Rothstein reported that Judge Newman produced a score of 24 out of 28 on a "partial MoCA"[161] because the score did not include drawing of a cube or a following a trail using a pencil due to her hand injury; however, it is unclear how she was able to draw

[154] Tannou, T., Godard-Marceau, A., Joubert, S., Daneault, S., Kergoat, M. J., Magnin, E., ... & Aubry, R. (2021). Added value of functional neuroimaging to assess decision-making capacity of older adults with neurocognitive disorders: protocol for a prospective, monocentric, single-arm study (IMAGISION). *BMJ open*, *11*(9), e053549.

[155] Roebuck-Spencer, T. M., Glen, T., Puente, A. E., Denney, R. L., Ruff, R. M., Hostetter, G., & Bianchini, K. J. (2017). Cognitive screening tests versus comprehensive neuropsychological test batteries: a National Academy of Neuropsychology education paper. *Archives of Clinical Neuropsychology*, *32*(4), 491-498.

[156] Gaudet, C. E., & Del Bene, V. A. (2022). Neuropsychological assessment of the aging physician: a Review & Commentary. *Journal of Geriatric Psychiatry and Neurology*, *35*(3), 271-279.

[157] Hoffman, S. (2022). Cognitive decline and the workplace. *Wake Forest Law Review*, *57*, 115.

[158] Dautzenberg, G., Lijmer, J., & Beekman, A. (2019). Diagnostic accuracy of the Montreal Cognitive Assessment (MoCA) for cognitive screening in old age psychiatry: Determining cutoff scores in clinical practice. Avoiding spectrum bias caused by healthy controls.

[159] Bruijnen, C. J., Dijkstra, B. A., Walvoort, S. J., Budy, M. J., Beurmanjer, H., De Jong, C. A., & Kessels, R. P. (2020). Psychometric properties of the Montreal Cognitive Assessment (MoCA) in healthy participants aged 18–70. *International Journal of Psychiatry in Clinical Practice*, *24*(3), 293-300.

[160] Rothstein, *Declaration of Ted L. Rothstein, MD*, at 1.

[161] Rothstein, *Declaration of Ted L. Rothstein, MD*, at 5.

a clock (and receive a perfect score) if she were unable to use her hand to draw a line connecting numbers and letters or to draw a cube on other parts of the MoCA. The clock drawing would necessarily be included in the remaining 28 points that Dr. Rothstein claimed to assess. It seems probable, however, that she was not able to draw the clock because she could not hold a pen. Thus, her score was likely 21 out of 25.

Based on the items of the MoCA that were administered, Judge Newman exhibited significant problems with memory recall. Judge Newman was unable to recall four out of five words that were read to her minutes earlier, and Dr. Rothstein interpreted this finding as indicating a "slight limitation in immediate memory."[162] I do not agree with that characterization. Although recalling one out of five memory items on the MoCA is not diagnostic by itself, data from the test publisher indicate that this score is commonly associated with cognitive impairment,[163] which indicates that this memory score may very well be more worrisome than a "slight limitation in immediate memory,"[164] as Dr. Rothstein characterized it to be. As shown in the graph below, Judge Newman's score of 1 out of 5 is much more in line with groups diagnosed with cognitive impairment.

MoCA Memory Scores by Condition
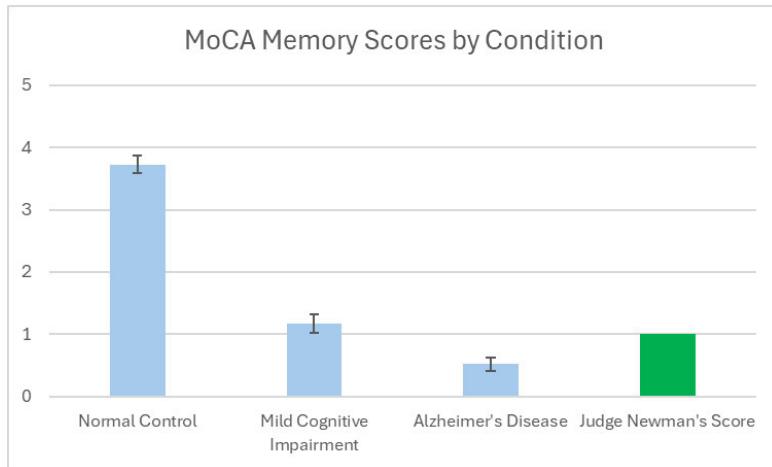
Dr. Rothstein did not include enough information to calculate the MoCA Memory Index Score (MIS), which not only includes free recall but also varying degrees of recognition cueing (e.g., if a word is not recalled, the test-taker is provided a categorical cue such as that the word was an animal and then a three-item multiple choice cue). Increasingly poor scores on the MIS are strongly associated with development of more severe cognitive disorders. For example, one study found that participants with a MoCA-MIS score less than 7/15

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[162] Rothstein, *Declaration of Ted L. Rothstein, MD*, at 5.
[163] https://mocacognition.com/moca-clinic-data/ derived from Nasreddine, Z. S., Phillips, N. A., Bédirian, V., Charbonneau, S., Whitehead, V., Collin, I., ... & Chertkow, H. (2005). The Montreal Cognitive Assessment, MoCA: a brief screening tool for mild cognitive impairment. Journal of the American Geriatrics Society, 53(4), 695-699. Values represent mean scores for each group, and error bars represent Standard Error of the Mean (SEM).
[164] Rothstein, *Declaration of Ted L. Rothstein, MD*, at 5.

at baseline converted to Alzheimer's disease within 18 months on average.[165] Dr. Rothstein did not include Judge Newman's score on the MIS, but her maximum possible score would have been 11/15. The score of 11 out of 15 would only have occurred if Judge Newman provided the correct answer to all four of the words that she did not recall after being provided a category cue (e.g., a type of food). If this did not improve her recall, she should have been given a multiple-choice answer (e.g., was it X, Y, or Z), and the MIS score could then be calculated. Based on the information provided, Judge Newman's MIS score could have ranged from 3/15 (none of the four missing words correct after cueing) to 11/15 (all four missing words correct after category cue).

The results provided by Dr. Rothstein do not fill in any gaps left in Dr. Filler's analysis, and, on the contrary, they introduce documented evidence of memory problems that indicate the need for further testing. Dr. Rothstein ultimately stated that Judge Newman "could have more detailed neuropsychological evaluation as part of her neurological assessment,"[166] along with a brain MRI with NeuroQuant analysis, but he nevertheless concluded that her abilities were "sufficient to continue her participation in her court's proceedings"[167] and that "[His] test demonstrated she had the cognitive function to continue to function as a judge in the court's proceedings."[168] Dr. Rothstein's conclusions did not match his findings. He administered part of a cognitive screening measure, and the part that was administered indicated significant memory concerns (contrary to his assertion that recalling one out of five words presented minutes earlier was a "slight limitation in immediate memory").[169]

> **SECTION 2.3:** Dr. Carney's report does not effectively rule out the presence of possible cognitive decline.

Dr. Carney, a general and forensic psychiatrist, was retained by the New Civil Liberties Alliance and an attorney for Judge Newman. Dr. Carney evaluated Judge Newman on August 25, 2023.[170] As with Dr. Filler, Dr. Carney relied on the self-report of Judge Newman, who denied having any significant cognitive problems. Dr. Carney reviewed news articles about the legal dispute and the publicly available filings in the matter, but she did not indicate anywhere in her report or analysis taking into account information from the affidavits. Dr. Carney knew of the existence of the affidavits, as she made reference to Judge Newman contending that they were not accurate. Dr. Carney perceived Judge Newman "to be articulate and respond

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[165] Julayanont, P., Brousseau, M., Chertkow, H., Phillips, N., & Nasreddine, Z. S. (2014). Montreal Cognitive Assessment Memory Index Score (MoCA-MIS) as a Predictor of Conversion from Mild Cognitive Impairment to A lzheimer's Disease. *Journal of the American Geriatrics Society*, *62*(4), 679-684.
[166] Rothstein, *Declaration of Ted L. Rothstein, MD*, at 5.
[167] Rothstein, *Declaration of Ted L. Rothstein, MD*, at 5.
[168] Rothstein, *Declaration of Ted L. Rothstein, MD*, at 1.
[169] Rothstein, *Declaration of Ted L. Rothstein, MD*, at 5.
[170] Regina Carney, *Independent Medical Examination*, (unpublished report, 2024) (on file with author).

to the concerns raised in a collected manner,"[171] but Judge Newman also reportedly had "no specific recollection of a negative event or experience that might have given rise to the complaint."[172]

Dr. Carney stated, "Given Judge Newman's advanced educational attainment and exceptional verbal fluency, the possibility of some degree of successful concealment of an underlying cognitive defect was examined."[173] This is a valid assumption; however, Dr. Carney chose to address this issue by administering the Modified Mini-Mental Status Exam (3-MS)—a coarse cognitive screening measure that is insensitive to effects of education and intelligence. The limitations of the 3-MS are the same as those described regarding the MoCA above; a screening measure of this type is not appropriate for definitive and comprehensive exploration of cognitive difficulties in a fitness for duty exam.

The abilities measured on the 3-MS include knowing the names of prominent politicians such as the President, Vice President, and Governor, counting backwards from five, pointing to different body parts, spelling a 5-letter word, recalling three words that were presented to her minutes earlier, and being oriented to the date, location, and situation. The 3-MS may be appropriate for a general patient in a neurology office, but it is insufficient to administer this measure in place of a comprehensive neuropsychological evaluation in the present matter. Dr. Carney also administered the Alzheimer Disease Clinical Dementia Rating (CDR), which also does not include formal or objective cognitive testing, and it was her opinion that Judge Newman had no major problems with memory, orientation, judgment, problem solving, social/occupational functioning, and personal care, leading to a Global CDR score of 0.

The 3-MS can be used for screening, but a definitive diagnosis of cognitive impairment requires additional evaluation,[174,175,176] and the CDR is not as effective at determining early signs of cognitive impairment and is better suited for the diagnoses of later stage dementia.[177,178] Further, no screening procedure—including

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[171] Carney, *Independent Medical Examination*, at 3.

[172] Carney, *Independent Medical Examination*, at 3.

[173] Carney, *Independent Medical Examination*, at 5.

[174] Holsinger, T., Plassman, B. L., Stechuchak, K. M., Burke, J. R., Coffman, C. J., & Williams Jr, J. W. (2012). Screening for cognitive impairment: comparing the performance of four instruments in primary care. *Journal of the American Geriatrics Society*, *60*(6), 1027-1036.

[175] Li, Y., Tian, X., Xiong, Z. Y., Liao, J. L., Hao, L., Liu, G. L., ... & Dong, J. (2016). Performance of the modified mini-mental state examination (3MS) in assessing specific cognitive function in patients undergoing peritoneal dialysis. *PLoS One*, *11*(12), e0166470.

[176] Mitchell, A. J. (2013). The Mini-Mental State Examination (MMSE): an update on its diagnostic validity for cognitive disorders. *Cognitive Screening Instruments: A Practical Approach*, 15-46.

[177] Duara, R., Loewenstein, D. A., Greig-Custo, M. T., Raj, A., Barker, W., Potter, E., ... & Potter, H. (2010). Diagnosis and staging of mild cognitive impairment, using a modification of the clinical dementia rating scale: the mCDR. *International Journal of Geriatric Psychiatry: A Journal of the Psychiatry of Late Life and Allied Sciences*, *25*(3), 282-289.

[178] Woolf, C., Slavin, M. J., Draper, B., Thomassen, F., Kochan, N. A., Reppermund, S., ... & Sachdev, P. S. (2016). Can the clinical dementia rating scale identify mild cognitive impairment and predict cognitive and functional decline?. *Dementia and Geriatric Cognitive Disorders*, *41*(5-6), 292-302.

the 3-MS, MoCA, or CDR—adequately covers the complete cognitive domains specified by DSM-5-TR.[179] The DSM-5-TR provides a table of neurocognitive domains included in the diagnostic criteria of major neurocognitive disorder (Table 1 under the *Neurocognitive Disorders* section). All of these domains include examples of assessments in each area, and all examples are neuropsychological tests.[180]

Dr. Carney concluded by stating, "In my medical and professional opinion, Judge Newman demonstrated no substantial emotional, medical, or psychiatric disability that would interfere with continuation of her longstanding duties as a Judge in the U.S. Court of Appeals."[181] In my opinion, Dr. Carney's examination of Judge Newman did not include comprehensive and reliable cognitive tests appropriate for Judge Newman's educational attainment, and Dr. Carney's conclusion is based on insufficient and incomplete information.

> **Conclusions from Section 2:**
>
> Neither Dr. Rothstein nor Dr. Carney appropriately assessed Judge Newman's cognitive abilities using comprehensive objective measures consistent with standard practice in determining potential cognitive impairment. Dr. Rothstein only administered part of a cognitive screening measure, and the measures administered by Drs. Rothstein and Carney assessed extremely basic information that does not address the concerns brought forth by Judge Newman's colleagues and coworkers. Despite detailed accounts and corroboration among various members of the staff, these concerns were not adequately addressed by Drs. Rothstein, Carney, or Filler, and Drs. Carney and Filler prematurely and erroneously concluded that the presently available information did not warrant further testing and evaluation.

SECTION 3: CONCLUSIONS AND OPINIONS

> **SECTION 3.1:** The evidence and opinions put forth by Drs. Filler, Rothstein, and Carney were not consistent with standard practice in addressing possible cognitive impairment in a fitness for duty evaluation, and conclusions from these exams indicating that Judge Newman is not in need of further evaluation are not supported.

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[179] Thabtah, F., Spencer, R., & Peebles, D. (2022). Common dementia screening procedures: DSM-5 fulfilment and mapping to cognitive domains. *International Journal of Behavioural and Healthcare Research*, 8(1-2), 104-120.

[180] American Psychiatric Association. (2022). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., text rev.). American Psychiatric Publishing.

[181] Carney, *Independent Medical Examination*, at 5.

Hon. Pauline Newman, a 97-year-old federal judge in the United States Court of Appeals for the Federal Circuit, is the subject of an investigation related to possible cognitive impairment that may affect her ability to carry out her work duties. Judge Newman declined to undergo evaluation in this context, but she provided opinions from physicians of her choosing that supported her ability to continue working without limitations or restrictions. This included a neurologist (Dr. Rothstein), a forensic psychiatrist (Dr. Carney), and a neurosurgeon and attorney with previous experience arguing cases in front of Judge Newman (Dr. Filler). None of the evaluations done on Judge Newman definitively rules out the presence of cognitive impairment. Procedures undertaken in these exams were—at best—appropriate for screening in a medical office but were not at all consistent with the level of scrutiny necessary for a fitness for duty evaluation involving potential cognitive impairment in a position of high responsibility. Most notably, Dr. Filler's opinion was not based on standard, reliable, and accepted methods to diagnose cognitive impairment, did not address all possible causes of cognitive impairment, and ignored obvious signs of possible impairment that were not adequately addressed with Perfusion CT or cognitive screening measures.

In his report, Dr. Filler overstated the reliability, validity, and general acceptance of using Perfusion CT to rule out cognitive impairment and inaccurately asserted that Perfusion CT has replaced the role of neuropsychological testing as a standard part of the assessment of cognitive deficits. He made incorrect statements about the relative subjectivity of neuropsychological testing compared with Perfusion CT, and he neglected to mention how neuropsychological test scores are engrained in the very definitions of various cognitive disorders according to their diagnostic criteria. Dr. Filler relied on Judge Newman's self-report and did not properly weigh the documented concerns of those around her, nor did he consider that other conditions aside from dementia could cause potential cognitive impairment. Dr. Filler only performed a brief interview and a Perfusion CT scan of Judge Newman, and his conclusions were premature and improper based on the information that he reviewed. Dr. Filler did not employ a single objective and widely accepted cognitive measure on Judge Newman, and his conclusion that no further evaluation or testing is needed is fundamentally flawed. There are standard and accepted methods to objectively assess cognitive impairment, and simply relying on his interpretation of a single brain scan is insufficient for the conclusions that he made. The many gaps in Dr. Filler's opinion were not filled in by the reports from Drs. Rothstein or Carney, as there was still inadequate assessment of Judge Newman's cognitive abilities. Despite detailed accounts and corroboration among various members of the staff, these concerns were not adequately addressed by Drs. Rothstein, Carney, or Filler, and Drs. Carney and Filler prematurely and erroneously concluded that the presently available information did not warrant further testing and evaluation.

I have no direct or indirect financial incentive for a particular determination, and compensation is not based on support or nonsupport of any opinion. I was paid at my standard rate of $400 per hour to complete this evaluation. The conclusions, opinions, and recommendations contained in this report are based on information that was available at the time of this report's preparation. Should additional information be forthcoming from any source, these conclusions, opinions, and recommendations are subject to review and revision.

Respectfully,

Jonathan DeRight, PhD, ABPP
Licensed Clinical Psychologist
Board Certified in Clinical Neuropsychology

APPENDIX A:

MATERIALS REVIEWED

- Affidavit of ▆▆▆▆▆▆ dated 04/19/2022
- Emails from ▆▆▆▆▆▆ and ▆▆▆▆ dated 01/30/2023 to 01/31/2023 (Exhibit 7)
- Declaration of ▆▆▆▆▆▆ dated 04/06/2023 (including docket exhibits)
- Email from Chief Judge Kimberly A. Moore dated 04/19/2023 (Exhibit 1)
- Email from Judge Pauline Newman dated 04/19/2023 (Exhibit 2)
- Affidavit of ▆▆▆▆▆ dated 04/20/2023
- Affidavit of ▆▆▆▆▆ dated 04/24/2023
- Affidavit of ▆▆▆▆▆ dated 04/25/2023
- Email exchange between Judge Pauline Newman and ▆▆▆▆▆ dated 04/25/2023 to 04/27/2023 (Exhibit 5)
- Email from Judge Pauline Newman dated 04/27/2023 (Exhibit 3)
- Affidavit of ▆▆▆▆▆ dated 05/03/2023
- Email exchange involving Chief Judge Kimberly A. Moore, ▆▆▆▆▆▆▆▆▆, and Judge Pauline Newman dated 05/08/2023 to 05/09/2023 (Exhibit 4)
- Affidavit of ▆▆▆▆▆▆ dated 05/09/2023
- Affidavit of ▆▆▆▆▆ dated 05/18/2023
- Affidavit of ▆▆▆▆▆ dated 05/19/2023
- Affidavit of ▆▆▆▆▆ dated 05/23/2023 (including email exhibits)
- Affidavit of ▆▆▆▆▆▆ dated 05/31/2023 (including docket exhibits)
- Affidavit of ▆▆▆▆▆ dated 05/31/2023 (including email exhibits)
- Affidavit of ▆▆▆▆▆ dated 06/01/2023
- Email exchange involving Chief Judge Kimberly A. Moore, Judge Pauline Newman, ▆▆▆▆▆, ▆▆▆▆▆▆▆▆ dated 06/06/2023 to 07/07/2023 (Exhibit 6)
- Affidavit of ▆▆▆▆▆ dated 06/26/2023
- Declaration of Ted L. Rothstein dated 08/29/2023 (including attached exhibit)
- Order of the Federal Circuit Judicial Council in Case No. 23-90015 dated 09/20/2023
- George Washington University Hospital, Perfusion CT report dated 08/22/2024 (including 134 images)
- Report of Aaron G. Filler, MD dated 08/24/2024 (including attachments)
- 2024-8-24 Newman_Pauline Eval from OneNote
- 2024-8-24 Newman_Pauline Exam from OneNote
- Order of the Federal Circuit Judicial Council in Case No. 23-90015 dated 09/06/2024
- Affidavit of Aaron G. Filler dated 09/17/2024
- Regina M. Carney, MD, report of Independent Medical Examination of Pauline Newman, undated (including attached exhibits)
- Motion for Reconsideration of Judicial Council's Order of September 6, 2024 dated 09/25/2024

JONATHAN DERIGHT, PHD, ABPP-CN

CONTACT

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Phone/Fax	703-957-7300 (Office) 703-615-4896 (Cell) 571-418-0095 (Fax)
Email	deright@precisionnp.com

EDUCATION

2014 – 2016   **Postdoctoral Fellowship in Clinical Neuropsychology**
The Johns Hopkins University School of Medicine
Baltimore, Maryland

2008 – 2014   **Doctor of Philosophy in Clinical Psychology**
Syracuse University (APA Accredited)
Syracuse, New York

2008 – 2011   **Master of Science in Clinical Psychology**
Syracuse University (APA Accredited)
Syracuse, New York

2004 – 2008   **Bachelor of Science in Neuroscience**
University of Rochester
Rochester, New York

LICENSURE & CREDENTIALING

2019 – Present   **Diplomate, American Board of Professional Psychology: Clinical Neuropsychology**
Certification Number: 8900

2016 – Present   **Commonwealth of Virginia**, Licensed Clinical Psychologist
License Number: 0810005431

2016 – Present   **District of Columbia**, Licensed Clinical Psychologist
License Number: PSY1001167

2016 – Present   **State of Maryland**, Licensed Clinical Psychologist
License Number: 05722

2021 – Present   **PSYPACT**
Authority to Practice Interjurisdictional Telepsychology (APIT)

Temporary Authorization to Practice (TAP)
Authorized to practice in Alabama, Arizona, Arkansas, Colorado, Connecticut, Delaware, Georgia, Idaho, Illinois, Indiana, Kansas, Kentucky, Maine, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, North Carolina, Ohio, Oklahoma, Pennsylvania, Tennessee, Texas, Utah, Washington, West Virginia, Wisconsin, & Wyoming

2016 – Present   **National Register Health Service Psychologist**
Registrant Number: 55393

CLINICAL EXPERIENCE

2020 - Present   **President & Clinical and Forensic Neuropsychologist,**
Precision Neuropsychology, PLLC
McLean, Virginia

2016 – Present   **Clinical and Forensic Neuropsychologist,**
Woodbridge Psychological Associates, PC
McLean, Virginia / Woodbridge, Virginia

2014 – 2016   **Postdoctoral Fellow,** Division of Medical Psychology
Department of Psychiatry, Division of Medical Psychology
The Johns Hopkins University School of Medicine, Baltimore, Maryland
Director: Jason Brandt, Ph.D., ABPP-CN

2013 – 2014   **Predoctoral Intern**, Psychology Internship Program – Adult Track
Department of Psychiatry and Behavioral Sciences
SUNY Upstate Medical University, Syracuse, New York
Director: Roger Greenberg, Ph.D.

2012 – 2013   **Forensic Psychology Extern**, Central New York Psychiatric Center
New York State Office of Mental Health, Marcy, New York
Director: Nichole Marioni, Ph.D., ABPP-FP

2010 – 2013   **Psychology Extern**, Psychological Services Center
Syracuse University Department of Psychology, Syracuse, New York
Director: Kevin Antshel, Ph.D.

2011 – 2012;   **Neuropsychology Extern**, Neuropsychology Assessment Program
2009 – 2010   SUNY Upstate Medical University, Syracuse, New York
Director: Dominic Carone, Ph.D., ABPP-CN

2004 – 2007   **Medical Assistant**, Emergency Department
Newark-Wayne Memorial Hospital, Newark, NY

ADDITIONAL TRAININGS

2024	**AAFP: Evaluating Risk in Child Pornography Offenders**
	4-hour online course taught by Kostas A. Katsavdakis, ABPP-FP
2023	**AAFP: Assessment of Competence to Stand Trial**
	4-hour online course taught by Lori Hauser, PhD, ABPP-FP
2023	**Artificial Intelligence in Health Care**
	6-week online course through the MIT Sloan School of Management
2021	**Conducting Financial Capacity Assessments for Older Adults**
	10-week training course through Wayne State University
2021	**Evaluation of Defendant's Intent under Virginia Code §19.2-271.6**
	1-day training through the Institute of Law, Psychiatry and Public Policy, University of Virginia
2017	**Mental Competency in Immigration Review**
	Sterling Medical/U.S. Department of Justice Initiative, Baltimore, Maryland
	1-day training: Preparation for mental competency assessments to assist the DOJ Executive Office of Immigration Review (EOIR)
2016	**Adult Basic Forensic Evaluation required according to Code of Virginia §19.2-169.1 regarding evaluation of trial competence and §19.2-169.5 regarding evaluation of sanity at the time of the offense**
	5-day training through the Institute of Law, Psychiatry and Public Policy, University of Virginia
2016	**Conducting Mental Health Evaluations for Capital Sentencing Proceedings**
	2-day training through the Institute of Law, Psychiatry and Public Policy, University of Virginia

EXPERT QUALIFICATIONS

Dr. DeRight is an approved forensic evaluator for the Commonwealth of Virginia, which allows him to be a court appointed evaluator in competency to stand trial and mental sanity at the time of the offense evaluations. His credentials and testimony have been accepted in every court or proceeding in which he has been offered as an expert, including the following:

United States District Court:
  District of Columbia
  District of Maryland
  Eastern District of Virginia
  Western District of Virginia

Local Jurisdictions:
  Arlington County Circuit Court
  Alexandria Circuit Court
  Alexandria General District Court

Alexandria Juvenile and Domestic Relations Court
Bedford County Circuit Court
Fairfax County Circuit Court
Loudoun County Circuit Court
Louisa County Circuit Court
Mecklenburg County District Court
Prince William County Circuit Court
Superior Court of the District of Columbia
Stafford County Circuit Court

TEACHING EXPERIENCE

2024 – Present   **Clinical Professor of Psychology**
The Meltzer Center: Psychological and Community-based Services
The George Washington University

2020 – 2021   **Neuropsychology Extern Supervisor**
Precision Neuropsychology, PLLC

2017 – 2018   **Neuropsychology Extern Supervisor**
Woodbridge Psychological Associates, PC

2015 – 2016   **Neuropsychology Extern Supervisor**
Johns Hopkins University School of Medicine

2015   **MCAT Instructor**
Odyssey Program
Krieger School of Arts and Sciences, The Johns Hopkins University

2013, 2014   **Adjunct Professor**
Assessment in Counseling (graduate course)
Department of Counseling and Human Services, Syracuse University

2008 – 2010   **Teaching Assistant**
Foundations of Human Behavior (undergraduate course)
Department of Psychology, Syracuse University

RESEARCH EXPERIENCE

2014 - 2016   **Research Fellow,** Division of Medical Psychology
Department of Psychiatry
The Johns Hopkins University School of Medicine, Baltimore, Maryland
<u>Principal Investigators</u>: Jason Brandt, PhD, David Schretlen, PhD & Vidya Kamath, PhD

2008 – 2013   **Research Associate,** Psychophysiology Lab
Department of Psychology

Syracuse University, Syracuse, New York
Principal Investigator: Randall Jorgensen, PhD

2010 – 2012   **Research Associate,** Translational Neuroscience Lab
Department of Psychology
Syracuse University, Syracuse, New York
Principal Investigator: Stephanie Cacioppo, Ph.D.

2006 – 2008   **Research Assistant,** Alzheimer's Disease Lab
Department of Brain and Cognitive Sciences
University of Rochester, Rochester, New York
Principal Investigator: Robert Chapman, Ph.D.

2007   **Research Assistant,** Molecular Biology Lab
Burnett School of Biomedical Sciences
University of Central Florida, Orlando, Florida
Principal Investigator: Ella Bossy-Wetzel, Ph.D.

2004 – 2006   **Patient Enroller**, Emergency Department
Strong Memorial Hospital, Rochester, NY

PEER-REVIEWED PUBLICATIONS

Buchholz, A. S., **DeRight, J.**, Gerner, G. J., & Schretlen, D. J. (2023). Do "effort tests" really test effort? *Neuropsychology, 37*(1), 104–112. https://doi.org/10.1037/neu0000865

Kamath, V., Chaney, G-A., **DeRight, J.**, & Onyike, C.U. (2018). A meta-analysis of neuropsychological, social cognitive, and olfactory functioning in the behavioral and language variants of frontotemporal dementia. *Psychological Medicine, Dec 6, 1-12.*

DeRight, J., Jorgensen, R.S., & Cabral, M. (2015). Composite cardiovascular risk scores and neuropsychological test performance: A meta-analytic review. *Annals of Behavioral Medicine, 9*(3), 344-357. doi:10.1007/s12160-014-9681-0

DeRight, J. & Jorgensen, R.S. (2015). "I just want my research credit": Frequency of suboptimal effort in a non-clinical healthy undergraduate sample. *The Clinical Neuropsychologist, 29*(1), 101-117. doi:10.1080/13854046.2014.989267

DeRight, J. & Carone, D.A. (2015). Assessment of effort in children: A systematic review. *Child Neuropsychology, 21*(1), 1-24. doi:10.1080/09297049.2013.864383

BOOKS, CHAPTERS, AND OTHER PUBLICATIONS

DeRight, J. & Vartkessian, E. (2022). Working with the Expert. In E. Kelley (Ed.), *Representing People with Dementia: A Practical Guide for Criminal Defense Lawyers* (pp. 141-153). American Bar Association. ISBN: 1639051325

DeRight, J. (2022). Essential Neuropsychology: A Concise Handbook for Adult Practitioners. *Springer Nature: Switzerland.* ISBN 978-3030853716

DeRight, J. (2019). History of "Frontal" Syndromes and Executive Dysfunction. In J. Bogousslavsky, F. Boller, & M. Iwata (Eds), *A History of Neuropsychology: Frontiers in Neurology and Neuroscience, Vol 44* (pp 100–107). Karger. DOI: 10.1159/000494957

DeRight, J. (2014). Detection of Dementia Risk in Primary Care: Preliminary Investigation of a Compositive Dementia Risk Score in Veterans. *Dissertations,* 142.

DeRight, J. (2011). Feedback, Task Demand, and Cognitive Test Performance in College Students. *Master's Thesis.*

CONFERENCE PRESENTATIONS

Chaney, G.A., **DeRight, J**., Aita, S., Onyike, C., & Kamath, V. (2017, February). *A meta-analysis of neuropsychological functioning, social cognition, and olfaction in the frontotemporal dementias*. Poster presented at the 45th International Neuropsychological Society Conference, New Orleans, Louisiana.

Bagger, J., **DeRight, J.,** & Brandt, J. (2017, February). *The Effect of Generation Gap on Informant Ratings using the IQCODE in a General Population Sample*. Poster presented at the 45th International Neuropsychological Society Conference, New Orleans, Louisiana.

DeRight, J. & Jorgensen, R.S. (2012, November). *Composite cardiovascular risk scores and neuropsychological test performance: A meta-analytic review*. Poster presented at the 32nd National Academy of Neuropsychology Conference, Nashville, Tennessee.

DeRight, J., Jorgensen, R.S., Lewandowski, L., & Ortigue, S. (2011, November). *The effects of feedback, state anxiety, and gender on neuropsychological test performance.* Poster presented at the 31st National Academy of Neuropsychology Conference, Marco Island, Florida.

INVITED TALKS & APPEARANCES

DeRight, J. & Peck, E.A. (2024, October). *Integrating artificial intelligence into clinical psychology*. CE course at the 2024 Fall Conference of the Virginia Academy of Clinical Psychologists, Virginia Beach, Virginia.

DeRight, J. (2024, June). *Responsibly using artificial intelligence (AI) to enhance the practice of clinical neuropsychology*. CE Workshop at the 2024 American Academy of Clinical Neuropsychology Annual Meeting, Scottsdale, Arizona.

DeRight, J. (2023, November). *Plenary: Neuropsychological testing in capital cases.* National Association of Criminal Defense Lawyers/Advancing Real Change Inc./Arizona Capital Representation Project BYOC Capital Defense Training. Orlando, Florida.

DeRight, J. & Shultz, E. (2023, June). *Selecting and effectively using mental health experts*. 2023 Holistic Defense and Leadership Conference. Baltimore, Maryland.

DeRight, J. (2023, March). *Application of clinical neuropsychology to the forensic setting*. Johns Hopkins Medical Psychology Seminar at Johns Hopkins Hospital.

DeRight, J., Jackson, L., Cassis, A., Perme, D., & Gilbertsen, T. (2022, September). *Aging attorneys: A multi-disciplinary examination of the clinical, legal and professional challenges & benefits*. 2022 National Conference for Lawyer Assistance Programs. Washington, DC.

DeRight, J., Jackson, L., Cassis, A., Perme, D., & Gilbertsen, T. (2021, September). *Our aging legal profession: Working with the benefits and the challenges.* Panel presentation to District of Columbia Superior Court Judges.

DeRight, J. & Shultz, E. (2020, November). *Selecting and Effectively Using Mental Health Experts*. National Alliance of Sentencing Advocates & Mitigation Specialists (NASAMS) Certificate Program.

DeRight, J., Jackson, L., Cassis, A., Perme, D., & Gilbertsen, T. (2020, September). *Our aging legal profession: Working with the benefits and the challenges.* DC Bar CLE course.

DeRight, J. (2020, July). *The aging workforce: Distinguishing between normal and abnormal signs in the workplace.* PsyBar 2020 Webinar Series.

DeRight, J. (2020, May). *A Primer on Neuropsychology.* Advancing Real Change, Inc.

DeRight, J. (2018, April). *A primer on neuropsychological evaluations following stroke.* Sentara Northern Virginia Medical Center, Woodbridge, Virginia.

DeRight, J. (2017, February). *Beyond classification: Dimensional measurement of effort in neuropsychology.* James Madison University, graduate course in neuropsychological assessment.

Schretlen, D.J. & **DeRight, J**. (2016, June). *Reconsidering the clinical implications and assessment of cognitive effort in neuropsychology.* CE Workshop at the 2016 American Academy of Clinical Neuropsychology Annual Meeting, Chicago, Illinois.

DeRight, J. & Puente, A.N. (2016, February) *Differential diagnosis of dementia.* Kennedy Krieger Institute Neuropsychology Continuing Education Lecture Series, Baltimore, Maryland.

PROFESSIONAL ACTIVITIES

2025	**Guest Editor**, *The Clinical Neuropsychologist* Special Issue on Artificial Intelligence
2022 – 2024	**Legislative Action and Advocacy Committee**, National Academy of Neuropsychology
2019 – Present	**Forensic Evaluation Oversight Panel Member**, Commonwealth of Virginia
2015 – Present	**Ad Hoc Peer Reviewer** *Archives of Clinical Neuropsychology, The Clinical Neuropsychologist* *Applied Neuropsychology, European Journal of Neurology, BMJ Open,* *Journal of Experimental Social Psychology*

PROFESSIONAL AFFILIATIONS

2009 – Present	National Academy of Neuropsychology (NAN)
2011 – Present	International Neuropsychological Society (INS)
2013 – Present	American Academy of Clinical Neuropsychology (AACN)
2018 – Present	American Psychological Association (APA)
2018 – Present	American Psychology-Law Society (APA Division 41)
2020 – Present	Society for Clinical Neuropsychology (APA Division 40)

HONORS AND RECOGNITIONS

2016	Early Career Psychologist Credentialing Scholarship
2012	National Academy of Neuropsychology Student Poster Award
2008	Shari & Joel Beckman Scholarship

**IN THE JUDICIAL COUNCIL OF THE UNITED STATES
COURT OF APPEALS FOR THE FEDERAL CIRCUIT**

In Re Complaint No. 23-90015

DECLARATION OF DR. JONATHAN DERIGHT

I, **Dr. Jonathan DeRight**, declare pursuant to 28 U.S.C. § 1746 as follows:

1.   I am a clinical psychologist licensed in Virginia, Maryland, and Washington, D.C. I am also a diplomate (i.e., Board Certified) in the specialty of Clinical Neuropsychology from the American Board of Professional Psychology.

2.   I have prepared a report in this matter dated January 27, 2025, and along with it a copy of my curriculum vitae (CV).

3.   Both my report and CV are true and correct to the best of my knowledge and the report presents my professional opinions.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: February 6, 2025

Dr. Jonathan DeRight

<div style="border: 1px solid gold;">

JASON M. JOHNSON, MD, MBA

</div>

REPORT

Re: Hon. Pauline Newman
DOB: 06/20/1927

I am a board-certified diagnostic radiologist with a certificate of added qualification in neuroradiology following a fellowship in diagnostic neuroradiology at Massachusetts General Hospital / Harvard Medical School and a fellowship in pediatric neuroradiology at the University of California San Francisco. I have 13 years of dedicated neuroradiology experience and am currently an Associate Professor of Radiology and Biomedical Imaging at Yale University where I also serve as the Chief of Neuroradiology. I am also a Colonel in the United States Air Force and currently serve as the Chief of Aerospace Medicine for the 147th Attack Wing of the Texas Air National Guard. I have military training in aerospace medicine and accident investigation. I have written more than 25 chapters on topics of neuroradiology and approximately 100 peer-reviewed scientific articles. My curriculum vitae is attached.

This report will summarize my findings and opinions as an expert regarding a report from Dr. Aaron Filler dated 9/17/2024 regarding Hon. Pauline Newman. Dr. Filler provided conclusions regarding his interpretation of a perfusion computed tomography (CT) of the brain with contrast performed on 8/22/2024.

My opinions reflect the results of evaluation of Judge Newman's neuroimaging studies as provided by Dr. Filler. I have not met or personally examined Judge Newman. No doctor-patient relationship has been established.

I am being compensated for my time in this matter at my customary rate of $650 an hour.

The materials I have examined are the following:

- Report Dr. Aaron Filler dated 9/17/2024.
- Perfusion CT interpretation report from Dr. M. Reza Taheri dated 8/22/2024.
- Processed perfusion CT JPEG images.

MY INTERPRETATION OF THE NEUROIMAGING:

Perfusion CT of the brain with contrast 8/22/2024:

The raw data from this examination is not available for my review or independent processing. The submitted data consists of 134 JPEG images processed by i-RAPID AI CTP iSchemaView software. The Food and Drug Administration 510(k) clearance indication for this software is, "…

can be used by physicians to aid in the selection of acute stroke patients (with known occlusion of the intracranial internal carotid artery or proximal middle cerebral artery)."[1]

The provided images reveal a satisfactory quality examination without findings of significant motion or artifact. The data suggests no evidence of an acute arterial infarction or evidence of abnormal regional cerebral blood flow or increased blood transit time.

On page 1 of the report, Dr. Filler annotated an image from the Perfusion CT (Series 231, Image 16) with arrows labelling "High Focal Blood Flow in Right Hippocampal Region" and "High Focal Blood Flow in Left Hippocampal Region." These labels are incorrect and what Dr. Filler has designated with his arrows are not the hippocampi.

The annotated image provided in the report by Dr. Filler (page 1) and included as Figure 1 below is an image of a slice of the brain at a position higher (closer to the top of the head) than the level of the hippocampi. The hippocampi reside below the level of the putamen and Sylvian fissure - which as my annotations show (Figure 2) are visible on this image. The annotated red areas in the images are related to significant concentration of iodine in the large cerebral arteries and veins. They do not reflect blood flow to the hippocampi. In fact, elevated relative cerebral blood flow to this degree would be pathologic if observed in the hippocampus.

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[1] U.S. Food and Drug Administration, Center for Devices and Radiological Health. Rapid Section 510(k) K213165 approval letter, February 8, 2022. Retrieved February 6, 2025, from https://www.accessdata.fda.gov/cdrh_docs/pdf21/K213165.pdf.
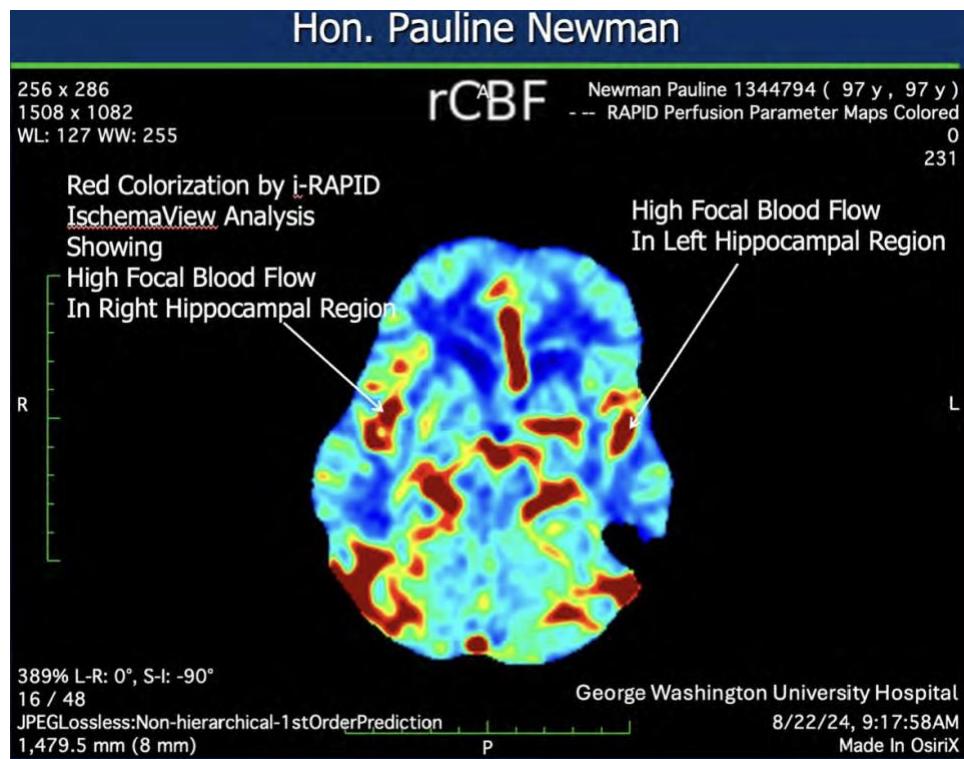
Figure 1. Annotated image from Page 1 of Dr. Filler's report dated 9/17/2024.
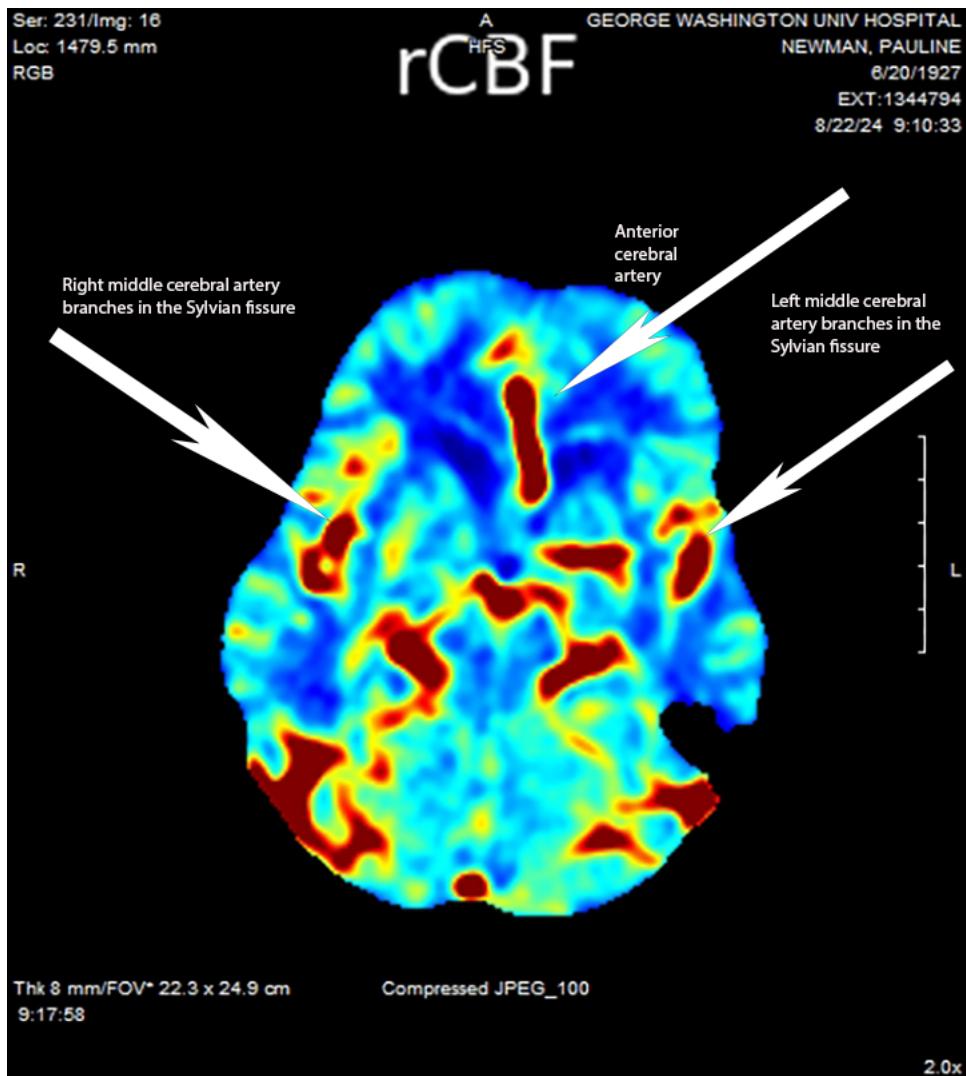
Figure 2. Dr. Johnson's annotation of the processed image which was annotated above.

I also disagree with Dr. Filler's assertion that a Perfusion CT examination can be utilized to rule out apparent cognitive dysfunction.

Perfusion CT examinations and specifically the chosen data processing methodology have not been FDA approved and is not marketed for the evaluation of cognitive function. The Food and Drug Administration 510(k) clearance indication for this software is, "… can be used by physicians to aid in the selection of acute stroke patients (with known occlusion of the intracranial internal carotid artery or proximal middle cerebral artery)."

Dr. Filler points to a limited number of articles indicating preliminary research suggesting a relationship between cerebral perfusion and certain types of dementia at the population level, but Perfusion CT has not been demonstrated to reliably identify individuals as either having or NOT

having cognitive dysfunction. The use of Perfusion CT to exclude cognitive dysfunction is not considered as a reasonable standard of care in clinical practice. Perfusion CT has not been demonstrated to be either sensitive (consistently identifying patients with cognitive impairment) or specific (consistently excluding patients without cognitive impairment).

The pretest likelihood that Judge Newman has a cognitive dysfunction should be considered unchanged by this examination. This test should not be construed as either ruling in or excluding the likelihood that a cognitive dysfunction is present.

I reserve the right to amend these opinions after review of any discovery documents and should any additional medical records become available.

My opinions are offered to a reasonable degree of medical certainty.

I hereby certify that the foregoing opinions and disclosures are true and correct to the best of my knowledge under penalty of perjury pursuant to 28 U.S.C. 1746.

Jason M. Johnson, MD, MBA

Form Approved: OMB No. 0910-0120

Expiration Date: 06/30/2023

See PRA Statement below.
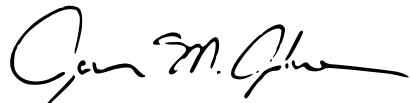
Indications for Use

510(k) Number *(if known)*

K213165

Device Name

Rapid

Indications for Use *(Describe)*

Rapid is an image processing software package to be used by trained professionals, including but not limited to physicians and medical technicians. The software runs on a standard off-the-shelf computer or a virtual platform, such as VMware, and can be used to perform image viewing, processing and analysis of images. Data and images are acquired through DICOM compliant imaging devices.

Rapid provides both viewing and analysis capabilities for functional and dynamic imaging datasets acquired with CT, CT Perfusion (CTP), CT Angiography (CTA), and MRI including a Diffusion Weighted MRI (DWI) Module and a Dynamic Analysis Module (dynamic contrast-enhanced imaging data for MRI and CT).

The CT analysis includes NCCT maps showing areas of hypodense and hyperdense tissue.

The DWI Module is used to visualize local water diffusion properties from the analysis of diffusion - weighted MRI data.

The Dynamic Analysis Module is used for visualization and analysis of dynamic imaging data, showing properties of changes in contrast over time. This functionality includes calculation of parameters related to tissue flow (perfusion) and tissue blood volume.

Rapid CT-Perfusion and Rapid MR-Perfusion can be used by physicians to aid in the selection of acute stroke patients (with known occlusion of the intracranial internal carotid artery or proximal middle cerebral artery)
Instructions for the use of contrast agents for this indication can be found in Appendix A of the User's Manual. Additional information for safe and effective drug use is available in the product-specific iodinated CT and gadolinium-based MR contrast drug labeling.

In addition to the Rapid imaging criteria, patients must meet the clinical requirements for thrombectomy, as assessed by the physician, and have none of the following contraindications or exclusions:
•   Bolus Quality: absent or inadequate bolus.
•   Patient Motion: excessive motion leading to artifacts that make the scan technically inadequate
•   Presence of hemorrhage

Type of Use *(Select one or both, as applicable)*

☒ Prescription Use (Part 21 CFR 801 Subpart D)   ☐ Over-The-Counter Use (21 CFR 801 Subpart C)

CONTINUE ON A SEPARATE PAGE IF NEEDED.

510(k) Summary

iSchemaView, Inc.'s Rapid

This document contains the 510(k) summary for the iSchemaView Rapid. The content of this summary is based on the requirements of 21 CFR Section 807.92(c).

<u>Applicant Name and Address:</u>

Name:	iSchemaView, Inc.
Address:	1120 Washington St., Suite 200 Golden, CO 80401
Official Contact:	Jim Rosa Phone: (303) 704-3374 Email: rosa@ischemaview.com

<u>Summary Preparation Date:</u>　　　`September 24, 2021

<u>Device Name and Classification:</u>

Trade Name:	iSchemaView Rapid
Common Name:	PACS – Picture Archiving Communications System
Classification:	II
Product Code:	Primary: QIH, Secondary: LLZ
Regulation No:	21 C.F.R. §892.2050
Classification Panel:	Radiology Devices

<u>Predicate Devices:</u>

The iSchemaView Rapid is claimed to be substantially equivalent to the following legally marketed predicate devices:

Primary: qER-Quant (K211222)
Secondary: iSchemaView Rapid (K182130)

<u>Previous Related FDA Submission:</u>

iSchemaView Rapid (K121447)
iSchemaView Rapid (K172477)
iSchemaView Rapid (K182130)

<u>Device Description:</u>

Rapid is a software package that provides for the visualization and study of changes in tissue using digital images captured by diagnostic imaging systems including CT (Computed

iSchemaView - Traditional 510(k) Rapid

510(k) Summary

Tomography) and MRI (Magnetic Image Resonance), as an aid to physician diagnosis. Rapid can be installed on a customer's Server or it can be accessed online as a virtual system. It provides viewing, quantification, analysis and reporting capabilities.

Rapid works with the following types of (DICOM compliant) medical image data:

- CT (Computed Tomography)
- MRI (Magnetic Image Resonance)

Rapid acquires (DICOM compliant) medical image data from the following sources:

- DICOM file
- DICOM CD-R
- Network using DICOM protocol

Rapid provides tools for performing the following types of analysis:

- selection of acute stroke patients for endovascular thrombectomy
- volumetry of thresholded maps
- time intensity plots for dynamic time courses
- measurement of mismatch between labeled volumes on co-registered image volumes
- large vessel density

Rapid is a Software as a Medical Device (SaMD) consisting of one or more Rapid Servers (dedicated or virtual). The Rapid Server is an image processing engine that connects to a hospital LAN, or inside the Hospital Firewall. It can be a dedicated Rapid Server or a VM Rapid appliance, which is a virtualized Rapid Server that runs on a dedicated server.

Rapid is designed to streamline medical image processing tasks that are time consuming and fatiguing in routine patient workup. Once Rapid is installed it operates with minimal user interaction. Once the CT (NCCT, CT, CTA) or MR (MR, MRA) data are acquired, the CT or MRI console operator selects Rapid as the target for the DICOM images, and then the operator selects which study/series data to be sent to Rapid. Based on the type of incoming DICOM data, Rapid will identify the data set scanning modality and determine the suitable processing module. The Rapid platform is a central control unit which coordinates the execution image processing modules which support various analysis methods used in clinical practice today:

- Rapid CTP/MRP, DWI, Dynamic Analysis (Original: K121447, Updated with K172477; and K182130);

- Rapid CTA (K172477);

- Rapid ASPECTS(K190395);

- Rapid ICH (K193087);

- Rapid LVO (K200941);

The iSchemaView Server is a dedicated server that provides a central repository for Rapid data. All iSchemaView Server data is stored on encrypted hard disks. It also provides a user interface for accessing Rapid data. It connects to a firewalled Data Center Network and

has its own firewall for additional cyber/data security.   The iSchemaView Server connects to one or more Rapid Servers via WAN. Available types of connection include VPN (Virtual Private Network - RFC2401 and RFC4301 Standards) Tunnel and SSH (Secure Shell).

Indications for Use:

Rapid is an image processing software package to be used by trained professionals, including but not limited to physicians and medical technicians. The software runs on a standard off-the-shelf computer or a virtual platform, such as VMware, and can be used to perform image viewing, processing and analysis of images. Data and images are acquired through DICOM compliant imaging devices.

Rapid provides both viewing and analysis capabilities for functional and dynamic imaging datasets acquired with CT Perfusion (CTP), CT Angiography (CTA), and MRI including a Diffusion Weighted MRI (DWI) Module and a Dynamic Analysis Module (dynamic contrast-enhanced imaging data for MRI and CT).

The CT analysis includes NCCT maps showing areas of hypodense and hyperdense tissue.

The DWI Module is used to visualize local water diffusion properties from the analysis of diffusion - weighted MRI data.

The Dynamic Analysis Module is used for visualization and analysis of dynamic imaging data, showing properties of changes in contrast over time. This functionality includes calculation of parameters related to tissue flow (perfusion) and tissue blood volume.

Rapid CT-Perfusion and Rapid MR-Perfusion can be used by physicians to aid in the selection of acute stroke patients (with known occlusion of the intracranial internal carotid artery or proximal middle cerebral artery)

Instructions for the use of contrast agents for this indication can be found in Appendix A of the User's Manual. Additional information for safe and effective drug use is available in the product-specific iodinated CT and gadolinium-based MR contrast drug labeling.

In addition to the Rapid imaging criteria, patients must meet the clinical requirements for thrombectomy, as assessed by the physician, and have none of the following contraindications or exclusions:

- Bolus Quality: absent or inadequate bolus.
- Patient Motion: excessive motion leading to artifacts that make the scan technically inadequate
- Presence of hemorrhage

iSchemaView - Traditional 510(k) Rapid

510(k) Summary

<u>Technological Characteristics:</u>

Rapid performs the following functions:

- processes DICOM images from multiple sources to provide visualization of changes of tissue perfusion, diffusion and change.

- receives DICOM images from external DICOM image providers (modalities (CT/MRI Scanners), PACS and Workstations) and sends DICOM images to external image consumers.

- processes requests, statuses and results, and references therein, which are stored in a searchable database

- processing status is available through a web browser using HTTP, HTML and PHP.

- for NCCT images, a motion filter (AI/ML) is employed which provides a textual overlay on an image suspected of having motion artifacts, without distorting the original image

- can send summary results to the user over email. For this, Rapid generally connects to the infrastructure of the medical partner (e.g., the hospital). In particular, Rapid uses a SMTP protocol with security extensions to provide secure communications.

Rapid is available in the following configurations:

- Standard Rapid, which is installed directly on a customer's Linux-based server and integrated with medical image processing software such as commercial PACS.

- Virtual Rapid, wherein the user accesses Rapid online and uses it to process DICOM images otherwise available on his/her computer.

Rapid is a DICOM-compliant PACS software that provides comprehensive functionality to transfer, process, and display modality specific imaging data. Rapid runs on standard "off-the- shelf' computer and networking hardware. Rapid is entirely independent from CT, MRI, or independent PACS platforms. It supports secure VPN (Virtual Private Network) networking or encapsulated Secure Shell (SSH), and seamlessly integrates into an existing radiological data network.

NCCT Motion Artifact AI/ML Module Performance:

Training was performed on 23066 (Pos:1021, Neg:12877) axial image slices from multiple sites, training validation included 5906 (pos: 422,neg: 5484) with a test set of 3262 (pos:2914, neg:348) images. Slice thickness ranged from 1.2-6.0 mm; The optimal performance for the final engineering solution showing an optimal AUC = 0.95, Sensitivity=0.95, Specificity=0.96. Samples were obtained from Siemens, GE, Toshiba, Philips, and Neurologica.

For final independent validation, an N=619 was used with ground truth established by 3 experienced truthers. Testing was performed independent of the development group to avoid bias. The primary endpoint was passed (weak artifact = 0) with Sensitivity = 0.91(0.83,0.95) and Specificity = 0.86(0.83,0/89) with AUC = 0.96(0.94,0.97). The cases were split Male:55%, Female 45% with an age range or 32-88 years. The samples were primarily from Siemens with GE mixed.

iSchemaView - Traditional 510(k) Rapid

510(k) Summary

Clinical Characteristics:

The primary users of Rapid software are medical imaging professionals who analyze tissue using CT or MRI images. The images generated by Rapid provide additional diagnostic information, which is derived from the temporal/diffusion/density features of the native CT or MRI images.

Rapid CT Perfusion and Rapid MRI can be used by physicians to select acute stroke patients for endovascular thrombectomy. The recommended selection criteria are listed in the table below. Patients must meet the clinical requirements for thrombectomy as assessed by the physician.

Performance Standards:

Rapid has been developed in conformance with the following standards, as applicable:

EN ISO 14971:2019	Application of Risk Management to Medical Devices
IEC 62304:2016	Medical device software – Software lifecycle processes
IEC 62366:2015	Application of Usability Engineering to Medical Devices
NEMA PS 3.1 - 3.20	Digital Imaging and Communications in Medicine (DICOM)

Performance Data:

Rapid complies with DICOM (Digital Imaging and Communications in Medicine) - Developed by the American College of Radiology and the National Electrical Manufacturers Association. NEMA PS 3.1 - 3.20.

Additionally, iSchemaView conducted extensive performance validation testing and software verification and validation testing of the Rapid system. This performance validation testing demonstrated that the Rapid system provides accurate representation of key processing parameters under a range of clinically relevant parameters and perturbations associated with the intended use of the software. Software performance, validation and verification testing demonstrated that the Rapid system met all design requirements and specifications.

Prescriptive Statement:
Caution: Federal law restricts this device to sale by or on the order of a physician.

Safety & Effectiveness:
Rapid has been designed, verified and validated in compliance with 21 CFR, Part 820.30 requirements. The device has been designed to meet the requirements associated with EN ISO 14971:2019 (risk management). The Rapid System performance has been validated through the use of phantoms and case data.

Substantial Equivalence:

Rapid is as safe and effective as the previously cleared Rapid (K182130) with an extension of two parameters similar to the hyperdensity defined in qER-Quant (K211222). Rapid has the same intended use and similar indications, technological characteristics and principles of operation as its predicate devices. Rapid raises no new issues of safety or effectiveness compared to qER-Quant (K211222) or Rapid (K182130), as demonstrated by the testing

conducted with Rapid that confirms the software reliably processes and supports analysis of CT and MRI medical images for tissue evaluation.   Thus, the Rapid software is substantially equivalent. The claims have been expanded to include the use of Rapid to show areas of hypodensity and hyperdensity and NCCT Motion Suspicion (AI/ML).

iSchemaView - Traditional 510(k) Rapid

510(k) Summary

Substantial Equivalence Discussion:

Parameter	**Rapid** (K182130) – Secondary	**qER-Quant** (K211222) - Primary	**Rapid**
Product Code	LLZ	QIH	QIH, LLZ
Regulation	21 CFR §892.2050	21 CFR §892.2050	21 CFR §892.2050
Intended Use/ Indications for Use	iSchemaView's Rapid is an image processing software package to be used by trained professionals, including but not limited to physicians and medical technicians. The software runs on a standard off-the-shelf computer or a virtual platform, such as VMware, and can be used to perform image viewing, processing and analysis of images. Data and images are acquired through DICOM compliant imaging devices. The iSchemaView Rapid provides both viewing and analysis capabilities for functional and dynamic imaging datasets acquired with CT Perfusion, CT Angiography, and MRI including a Diffusion Weighted MRI (DWI) Module and a Dynamic Analysis Module (dynamic contrast-enhanced imaging data for MRI and CT). The DWI Module is used to visualize local water diffusion properties from the analysis of diffusion - weighted MRI data. The Dynamic Analysis Module is used for visualization and analysis of dynamic imaging data, showing properties of changes in contrast over time. This functionality includes calculation of parameters related to tissue flow (perfusion) and tissue blood volume. Rapid CT-Perfusion and Rapid MR-	The qER-Quant device is intended for automatic labeling, visualization and quantification of segmentable brain structures from a set of Non-Contrast head CT (NCCT) images. The software is intended to automate the current manual process of identifying, labeling and quantifying the volume of segmentable brain structures identified on NCCT images. qER-Quant provides volumes from NCCT images acquired at a single time point and provides a table with comparative analysis for two or more images that were acquired on the same scanner with the same image acquisition protocol for the same individual at multiple time points. The qER-Quant software is indicated for use in the analysis of the following structures: Intracranial Hyperdensities, Lateral Ventricles and Midline Shift.	Rapid is an image processing software package to be used by trained professionals, including but not limited to physicians and medical technicians. The software runs on a standard off-the-shelf computer or a virtual platform, such as VMware, and can be used to perform image viewing, processing and analysis of images. Data and images are acquired through DICOM compliant imaging devices. Rapid provides both viewing and analysis capabilities for functional and dynamic imaging datasets acquired with CT, CT Perfusion (CTP), CT Angiography (CTA), and MRI including a Diffusion Weighted MRI (DWI) Module and a Dynamic Analysis Module (dynamic contrast-enhanced imaging data for MRI and CT). The CT analysis includes NCCT maps showing areas of hypodense and hyperdense tissue. The DWI Module is used to visualize local water diffusion properties from the analysis of diffusion - weighted MRI data. The Dynamic Analysis Module is used for visualization and analysis of dynamic imaging data, showing properties of changes in contrast over time. This functionality includes calculation of

	Perfusion can be used by physicians to aid in the selection of acute stroke patients (with known occlusion of the intracranial internal carotid artery or proximal middle cerebral artery) Instructions for the use of contrast agents for this indication can be found in Appendix A of the User's Manual. Additional information for safe and effective drug use is available in the product-specific iodinated CT and gadolinium-based MR contrast drug labeling. In addition to the Rapid imaging criteria, patients must meet the clinical requirements for thrombectomy, as assessed by the physician, and have none of the following contraindications or exclusions. Contraindications/Exclusions: • Bolus Quality: absent or inadequate bolus. • Patient Motion: excessive motion leading to artifacts that make the scan technically inadequate • Presence of Hemorrhage		parameters related to tissue flow (perfusion) and tissue blood volume. Rapid CT-Perfusion and Rapid MR-Perfusion can be used by physicians to aid in the selection of acute stroke patients (with known occlusion of the intracranial internal carotid artery or proximal middle cerebral artery) Instructions for the use of contrast agents for this indication can be found in Appendix A of the User's Manual. Additional information for safe and effective drug use is available in the product-specific iodinated CT and gadolinium-based MR contrast drug labeling. In addition to the Rapid imaging criteria, patients must meet the clinical requirements for thrombectomy, as assessed by the physician, and have none of the following contraindications or exclusions. Contraindications/Exclusions: • Bolus Quality: absent or inadequate bolus. • Patient Motion: excessive motion leading to artifacts that make the scan technically inadequate • Presence of hemorrhage
	PACS Functionality		
Basic PACS Functions	Software package which interfaces to a PACS or allows viewing within the application	Viewing through user PACS	Same
Computer Platform	Standard off-the-shelf Hardware: On-Premise	Standard off-the-shelf Hardware: On-Premise and Secure Cloud	Standard off-the-shelf Hardware: On-Premise
Software	Traditional Coding	AI/ML	Mixed Traditional and AI/ML(NCCT Motion Filter)
DICOM Compliance	Yes	Yes	Yes

510(k) Summary

Functional Overview	Rapid is a software package that provides for the visualization and study of changes of tissue in digital images captured by CT and MRI. Rapid provides viewing and quantification.	Same	Same
Data/Image Types	Computed Tomography (CT) via DICOM Format	Same	Same
	Magnetic Image Resonance (MRI) via DICOM Format	Not supported	Supported
	Acquisition and Modalities Features		
MRI	Diffusion Weighted Image (DWI)	Not supported	Supported
	Dynamic Analysis tissue flow (perfusion) and tissue blood volume	Not supported	Supported
CT	CT Perfusion (CTP)	Not supported	Supported
	CTA-large vessel density analysis	Not Supported	Supported
	Computed Parameter Maps		
Diffusion MRI	Isotropic DWI (isoDWI)	Not supported	Supported
	ADC	Not supported	Supported
	Trace of diffusion tensor (Trace)	Not supported	Supported
	Fractional Anisotropy (FA) and color FA	Not supported	Supported
Perfusion MRI and Perfusion CT	Cerebral blood flow (CBF)	Not supported	Supported
	Cerebral blood volume (CBV)	Not supported	Supported
	Mean transit time (MTT)	Not supported	Supported
	Tissue residue function time to peak (Tmax)	Not supported	Supported
	Measurement Tools		
MRI and CT Tools	Arterial input function (AIF)Venous output function (VOF)	Not supported	Supported
	Time-course	Not supported	Supported
	Mask	Not supported	Supported
	Region of interest (ROI) and Volumetry	Not supported	Supported
	Volumetric comparison between 2 ROIs	Not supported	Supported
	Motion correction	Not supported	Supported
	Export perfusion and diffusion files to PACS and DICOM file systems	Not supported	Supported

	Acquire, transmit, process, and store medical images	Not supported	Supported
Thrombectomy	Selection of Patients meeting criteria for Thrombectomy	Supported	Supported
NCCT	Hyperdensity (Not included)	Supported	Supported
	Hypodensity (Not included)	Not supported	Supported
	Motion Artifact Filter (Not included)	Not supported	Supported

<u>Conclusion:</u>

In conclusion, the iSchemaView Rapid is substantially equivalent in intended use, technological characteristics, safety, and performance characteristics to the legally marketed predicate devices, qER-Quant (K211222) and Rapid (K182130).

CURRICULUM VITAE
Jason Michael Johnson, MD, MBA, DABR

Version Date: 11/14/2024

Contact Information:

Address	20 York Street
	New Haven, CT 06510
Phone:	1 (203) 785-5913
Email:	jason.johnson@yale.edu

School: Yale School of Medicine

Education:

09/1998 - 12/2001	BS, Arizona State University, Psychology, Tempe, AZ
08/2002 - 05/2006	MD, University of Arizona, Medicine, Tucson, AZ
10/2012 - 04/2013	Air University, Squadron Officer School (SOS), Montgomery, AL
06/2015 - 12/2015	Air Force Institute of Technology, Nuclear Weapons Effects, Policy, and Proliferation Certificate, Wright-Patterson Air Force Base, OH
01/2017 - 07/2017	Air University, Air Command and Staff College (ACSC), Montgomery, AL
05/2019 - 11/2019	Air University, Air War College, Montgomery, AL
12/2019 - 07/2020	Rice University, Data Analytics, Houston, TX
08/2020 - 05/2022	MBA, Rice University, Business Administration, Houston, TX
10/2023 - 06/2024	Yale School of Medicine Office of Academic and Professional Development, Healthcare Leadership Program, New Haven, CT

Career/Academic Appointments:

06/2006 - 06/2007	Intern, Internal Medicine, Banner Good Samaritan Regional Medical Center / Carl T. Hayden VAMC, Phoenix, AZ
07/2007 - 06/2011	Resident, Radiology, University of Vermont, Burlington, VT
07/2011 - 06/2013	Fellow, Neuroradiology, Massachusetts General Hospital / Harvard Medical School, Boston, MA
07/2012 - 06/2013	Clinical Instructor, Radiology, Massachusetts General Hospital, Boston, MA
07/2013 - 06/2014	Clinical Instructor, Radiology & Biomedical Imaging, University of California San Francisco, San Francisco, CA
07/2013 - 06/2014	Fellow, Neuroradiology, University of California, San Francisco, San Francisco, CA
07/2014 - 08/2014	Health Sciences Assistant Clinical Professor, Radiology & Biomedical Imaging, University of California San Francisco, San Francisco, CA
09/2014 - 08/2019	Assistant Professor, Neuroradiology, The University of Texas MD Anderson Cancer Center, Houston, TX

09/2019 - 08/2023	Associate Professor, Neuroradiology, The University of Texas MD Anderson Cancer Center, Houston, TX
10/2023 - 06/2028	Associate Professor on Term, Radiology and Biomedical Imaging, Yale School of Medicine, New Haven, CT

Administrative Positions:

2015 - 2021	Operations Committee Representative, Diagnostic Imaging, The University of Texas MD Anderson Cancer Center, Houston, TX
2016 - 2019	Directory of Neuroradiology Magnetic Resonance Imaging, Diagnostic Radiology, The University of Texas MD Anderson Cancer Center, Houston, TX
2016 - 2023	Co-Director of Advanced Neurologic Imaging Program, Neuroradiology, The University of Texas MD Anderson Cancer Center, Houston, TX
2023 - Present	Section Chief, Neuroradiology, Yale School of Medicine, New Haven, CT

Board Certification:

2011 - 2024	AB of Radiology, Diagnostic Radiology
2013 - 2024	AB of Radiology, Neuroradiology

Professional Honors & Recognition:

International/National/Regional

2009	Leading Scientific Advancements in Medical Imaging, Radiologic Society of North America
2010	Roentgen Resident/Fellow Research Award, Radiologic Society of North America
2011	Certificate of Merit, Radiologic Society of North America
2011	Cum Laude Award, Radiologic Society of North America
2013	Air Force Outstanding Unit Award, United States Air Force
2013	Air Force Training Ribbon, United States Air Force
2014	Air Force Achievement Medal, United States Air Force
2017	Air Force Commendation Medal, United States Air Force
2017	Air Force Expeditionary Service Ribbon, United States Air Force
2017	Air Force Expeditionary Service Ribbon with Gold Border, United States Air Force
2017	Meritorious Service Medal, United States Air Force
2018	Global War on Terrorism Service Award, United States Air Force
2018	Humanitarian Service Award, United States Air Force
2018	National Defense Service Medal, United States Air Force
2018	Leading Scientific Advancements in Medical Imaging, Radiological Society of North America
2019	International Society of Magnetic Resonance in Medicine Magna Cum Laude Merit Award, International Society of Magnetic Resonance in Medicine
2019	Korean Defense Service Medal, United States Air Force
2019	Aerial Achievement Medal, United States Air Force
2019	Air Medal, United States Air Force

| 2020 | Robert D. Zimmerman Scientific Award, The Eastern Neuroradiological Society |
| 2024 | Meritorious Service Medal, United States Air Force |

Yale University/Yale School of Medicine/Hospital System

2016	Diagnostic Radiology Enhancement Award, The University of Texas MD Anderson Cancer Center
2016	Recognition for Act Project, The University of Texas MD Anderson Cancer Center
2017	Pilot Research Program Award, The University of Texas MD Anderson Cancer Center

Other

2003 - 2004	Young Investigator Award, Yuma Friends of Arizona Health Sciences Center
2004	Leadership Award, Shubitz Family Clinic / Commitment to Underserved People
2004	Representative of the Year, The University of Arizona Graduate & Professional Student Council
2008	Resident Award in Informatics, University of Vermont, Department of Radiology
2010	Resident Award in Informatics, University of Vermont, Department of Radiology

Grants/Clinical Trials History:

Past Grants

Agency:	NIH/NCI
I.D.#:	R01 CA231513
Title:	Development and dissemination of clinical CEST MRI acquisition and analysis method for cancer imaging applications
P.I.:	Marty Pagel, PhD
Role:	Co-Investigator
Percent effort:	4%
Total costs:	$2,039,450.00
Project period:	12/01/2018 - 11/30/2023

Agency:	NIH/NCI
I.D.#:	FP00014104
Title:	Quantitative Imaging Biomarker Prospective Validation of Dynamic Contrast-Enhanced MRI as a Metric of Orodental Injury After Radiotherapy (QI-ProVE-MRI)
P.I.:	Stephen Y. Lai, MD, PhD
Role:	Co-Investigator
Percent effort:	4%
Total costs:	$2,486,689.00
Project period:	07/01/2022 - 08/30/2023

| Agency: | Blue Earth Diagnostics |

I.D.#:	HIC# 080950034072
Title:	Study of F18 Fluciclovine PET CT for Assessment of Glioblastoma Tumor Volume and Radiation Response
Role:	Principal Investigator
Percent effort:	5%
Total costs:	$60,000.00
Project period:	06/01/2018 - 08/30/2023

Agency:	Arizona Disease Control Research Commission
I.D.#:	0055-66-01
Title:	Genetic basis of Auriculo-Condylar Syndrome in 2 Arizona Families
P.I.:	David Duggan, PhD
Role:	Sub-PI
Percent effort:	10%
Total costs:	$150,000.00
Project period:	07/22/2005 - 08/01/2008

Agency:	UTMDACC Diagnostic Imaging Clinical Research Committee
I.D.#:	2018-0659
Title:	Dual Time Point FDG PET Imaging Optimization for the Evaluation of Glioblastoma
Role:	Principal Investigator
Percent effort:	10%
Total costs:	$124,520.00
Project period:	05/19/2016 - 08/17/2020

Agency:	NIH/NCI
I.D.#:	1R01DE025248-01
Title:	Using Dynamic Contrast-Enhanced Magnetic Resonance Imaging (DCE-MRI) to Establish Objective Clinical Outcome Measures for Mandibular Osteoradionecrosis
P.I.:	Stephen Y. Lai, MD, PhD
Role:	Co-Investigator
Percent effort:	2%
Total costs:	$938,430.00
Project period:	04/01/2017 - 03/31/2021

Agency:	American Society of Head and Neck Radiology
I.D.#:	2017-0826
Title:	Post-treatment Assessment of Head and Neck Tumors Following Definitive Chemoradiation Therapy
Role:	Principal Investigator
Percent effort:	1%
Total costs:	$23,700.00

Project period: 06/30/2017 - 06/29/2021

Agency: UTMDACC Diagnostic Imaging Clinical Research Committee
I.D.#:   2018-0303
Title: Advanced CT Imaging Optimization for the Detection of Intracranial Metastasis
Role: Principal Investigator
Percent effort: 5%
Total costs: $35,000.00
Project period: 12/29/2017 - 12/29/2023

Agency: The Brockman Foundation
I.D.#:   01
Title: The Brockman Foundation
P.I.:   Ganesh Rao, MD, PhD
Role: Co-Investigator
Percent effort: 1%
Total costs: $2,173,913.00
Project period: 04/01/2020 - 03/31/2023

Pending Clinical Trials

Agency: -
I.D.#:   2000038610
Title: Imaging Neuroplasticity in Focal Lesions
P.I.:   Luca Pasquini
Role: Sub-Investigator
Percent effort: N/A
Total costs: -

Agency: -
I.D.#:   2000038843
Title: Clinical Neuroplasticity Repository
P.I.:   Luca Pasquini
Role: Sub-Investigator
Percent effort: N/A
Total costs: -
Project period: 11/13/2024 - ongoing

Invited Speaking Engagements, Presentations & Workshops Not Affiliated With Yale:

International/National

1. "Pearls and pitfalls of magnetic resonance perfusion imaging in the evaluation of central nervous system neoplasms". European Society of Neuroradiology , 38th European Society of Neuroradiology Annual Meeting, Naples, Campania, September 2015. (Oral Presentation)

2. "Practical case-based discussions of single vs fractionated stereotactic radiosurgery for benign brain tumors". American Society for Radiation Oncology , American Society for Radiation Oncology 60th Annual Meeting, San Antonio, TX, September 2018. (Lecture)
3. "AI in Skull Base Surgery, Head and Neck Radiology". North American Skull Base Society, North American Skull Base Society Annual Meeting, Atlanta, GA, February 2024. (Other)
4. "It Takes a Village: How to Create a Research Team". American Society of Neuroradiology, American Society of Neuroradiology Annual Meeting, Las Vegas, NV, May 2024. (Lecture)

Regional

1. "Case Presentations of Tumor and Tumor-like Conditions: Evaluation with Advanced Imaging". New York University Section of Neuroradiology, Visiting Professor, New York, NY, May 2015. (Lecture)
2. "Unusual Cases in Neuroradiology". North Shore / Long Island Jewish Medical Center Department of Radiology, Visiting Professor, Manhasset, NY, July 2015. (Lecture)
3. "Advanced Imaging in Tumors and Tumor-like Conditions". University of Vermont Department of Radiology, Grand Rounds, Burlington, VT, August 2015. (Lecture)
4. "Advanced Brain Tumor Imaging". Tufts Medical Center Department of Radiology, Visiting Professor, Boston, MA, September 2015. (Lecture)
5. "Cutting-edge MRI". Eastern Neuroradiological Society, 27th Annual Meeting of the Eastern Neuroradiological Society, Newport, RI, September 2015. (Oral Presentation)
6. "Zebras and Unicorns: Rare and Exotic Cases in Neuroradiology". Stanford University Section of Neuroradiology, Visiting Professor, Palo Alto, CA, October 2015. (Lecture)
7. "Select Cases with MR Perfusion and Spectroscopy". Visiting Professor, San Francisco, CA, October 2015. (Lecture)
8. "Advanced Neuro-Imaging of Brain Lesions". University of South Alabama Department of Radiology, Grand Rounds, Mobile, AL, April 2016. (Lecture)
9. "Zebras and Unicorns in Neuroradiology". Visiting Professor, New York, NY, June 2016. (Lecture)
10. "Difficulties in Glioblastoma Treatment Assessment". Massachusetts General Hospital / Harvard Medical School Section of Neuroradiology, Visiting Professor, Boston, MA, March 2018. (Lecture)
11. "Challenges in Glioblastoma Imaging: 2018". Columbia University Department of Radiology, Visiting Professor, New York, NY, May 2018. (Lecture)
12. "Providing Added Clinical Value in Imaging of Glioblastoma". University of California San Francisco Department of Radiology & Biomedical Imaging, Visiting Professor, San Francisco, CA, September 2018. (Lecture)
13. "Defeating Glioblastoma: The Terminator". Stanford University Section of Neuroradiology, Visiting Professor, Palo Alto, CA, September 2018. (Lecture)
14. "Business in Radiology". Diagnostic Radiology Residency Training Program at Bridgeport Hospital, Bridgeport Hospital Diagnostic Radiology Noon Lecture, Bridgeport, CT, April 2024. (Lecture)
15. "PET Imaging for Head and Neck Cancer". University of California, Midwest Head and Neck Imaging Conference 2024, Chicago, IL, April 2024. (Lecture)
16. "Opportunities in Imaging Glioblastoma: PET and Advanced MRI". Zucker School of Medicine at Hofstra/Northwell, Zucker School of Medicine at Hofstra/Northwell Residency in Diagnostic Radiology Conference Series, Hempstead, NY, September 2024. (Lecture)
17. "Cutting-edge Innovations in Advanced Brain Tumor Imaging". Massachusetts General Hospital / Harvard Medical School Neuroradiology Grand Rounds, Boston, MA, October 2024. (Lecture)

Peer-Reviewed Presentations Given at Meetings Not Affiliated With Yale:

International/National

1. **Johnson JM** . Performance assessment of dynamic susceptibility contrast versus dynamic contrast enhanced perfusion imaging in distinguishing between true progression and pseudoprogression in a series of patients with high-grade glial neoplasm. European Society of Neuroradiology, 38th European Society of Neuroradiology Annual Meeting, Naples, Campania, September 2015. (Oral Presentation)
2. **Johnson JM** . Clinical performance characteristics of multivoxel magnetic resonance spectroscopy in distinguishing between true progression and pseudoprogression in a series of patients with high-grade glial neoplasm. Radiological Society of North America, 101st Radiological Society of North America Scientific Program and Annual Meeting, Chicago, IL, November 2015 - December 2015. (Oral Presentation)
3. **Johnson JM** . Pearls and pitfalls of multivoxel magnetic resonance spectroscopy in the evaluation of true progression versus pseudoprogression of high-grade glial neoplasm. Radiological Society of North America, 101st Radiological Society of North America Scientific Program and Annual Meeting, Chicago, IL, November 2015 - December 2015. (Poster Presentation)
4. Bronson Ciavarra, **Johnson JM** . Delayed FDG-PET in differentiating recurrent cerebral metastatic disease from radiation necrosis following stereotactic radiosurgery. European Society of Neuroradiology , European Society of Neuroradiology 41st Annual Meeting, Rotterdam, ZH, September 2018. (Oral Presentation)

Regional

1. Ayesha Masood, **Johnson JM** . Accuracy of ultrasound-guided 18-gauge fine-needle aspiration in the detection of persistent lymph node metastasis after chemoradiation. Western Neuroradiological Society, Western Neuroradiological Society , Austin, TX, October 2016. (Oral Presentation)

Professional Service:

Journal Services

Editorial boards

2023 - Present   Editorial Board Member, Frontiers in Neuroimaging

Reviewer

2020 - Present   Reviewer, American Society of Neuroradiology

Professional Organizations

American Society of Functional Neuroradiology - Clinical Practice Committee

2022 - 2025   Committee Member, American Society of Functional Neuroradiology - Clinical Practice Committee

American Society of Functional Neuroradiology - Membership Committee Member

2024 - 2027   Committee Member, American Society of Functional Neuroradiology - Membership Committee Member, Three-year term as a member of the ASFNR Membership Committee

American Society of Functional Neuroradiology - Research Committee Member

2022 - 2025   Committee Member, American Society of Functional Neuroradiology - Research Committee Member

American Society of Neuroradiology - Computer Science & Informatics Committee

2023 - Present   Committee Member, American Society of Neuroradiology - Computer Science & Informatics Committee, Computer Science & Informatics Committee Member

American Society of Neuroradiology - Diversity & Inclusion Committee Member

2023 - Present   Committee Member, American Society of Neuroradiology - Diversity & Inclusion Committee Member, Diversity & Inclusion Committee Member

American Society of Neuroradiology - Research Committee Member

2023 - Present   Committee Member, American Society of Neuroradiology - Research Committee Member, Research Committee Member

American Society of Pediatric Neuroradiology - Research Committee Member

2015 - 2018   Committee Member, American Society of Pediatric Neuroradiology - Research Committee Member, Research Committee Member

North American Skull Base Society

2024 - Present   Member, North American Skull Base Society

Radiological Society of North America - Education Exhibits Awards Committee, Nuclear Medicine & Molecular Imaging

2024 - 2025   Committee Member, Radiological Society of North America - Education Exhibits Awards Committee, Nuclear Medicine & Molecular Imaging

Yale University / Hospital System

Department

2024 - 2025   Member, Diagnostic Radiology Resident Selection Committee

Public Service / Media Presence

Public Service

2014 - Present   Volunteer, Houston Livestock Rodeo Health Committee
2017 - 2019   Executive Board Member, Houston Livestock Rodeo Health Committee - Captain

Bibliography:

Peer-Reviewed Original Research

1. Storm A, **Johnson J** , Lammer E, Green G, Cunniff C. Auriculo-condylar syndrome is associated with highly variable ear and mandibular defects in multiple kindreds. American Journal Of Medical Genetics Part A 2005, 138A: 141-145. PMID: 16114046 , DOI: 10.1002/ajmg.a.30883 .
2. Filippi C, Meyer R, Cauley K, Nickerson J, Burbank H, **Johnson J** , Linnell G, Alsofrom G. The misinterpretation rates of radiology residents on emergent neuroradiology magnetic resonance (MR) angiogram studies: correlation with level of residency training. Emergency Radiology 2009, 17: 45. PMID: 19499257 , DOI: 10.1007/s10140-009-0820-z .
3. Rieder M, Green G, Park S, Stamper B, Gordon C, **Johnson J** , Cunniff C, Smith J, Emery S, Lyonnet S, Amiel J, Holder M, Heggie A, Bamshad M, Nickerson D, Cox T, Hing A, Horst J, Cunningham M. A Human Homeotic Transformation Resulting from Mutations in PLCB4 and GNAI3 Causes Auriculocondylar Syndrome. American Journal Of Human Genetics 2012, 91: 397. PMCID: PMC3415552 , DOI: 10.1016/j.ajhg.2012.07.011 .
4. Filippi C, Carlson M, **Johnson J** , Burbank H, Alsofrom G, Andrews T. Improvements in lumbar spine MRI at 3 T using parallel transmission. American Journal Of Roentgenology 2012, 199: 861-7. PMID: 22997379 , DOI: 10.2214/ajr.11.8139 .
5. **Johnson J** , Reed M, Burbank H, Filippi C. Quality of Extracranial Carotid Evaluation with 256-Section CT. American Journal Of Neuroradiology 2013, 34: 1626-1631. PMID: 23471025 , PMCID: PMC8051452 , DOI: 10.3174/ajnr.a3433 .
6. van Eeghen A, Terán L, **Johnson J** , Pulsifer M, Thiele E, Caruso P. The neuroanatomical phenotype of tuberous sclerosis complex: focus on radial migration lines. Neuroradiology 2013, 55: 1007-1014. PMID: 23644537 , DOI: 10.1007/s00234-013-1184-3 .
7. Gordon C, Cunniff C, Green G, Zechi-Ceide R, **Johnson J** , Henderson A, Petit F, Kokitsu-Nakata N, Guion-Almeida M, Munnich A, Cunningham M, Lyonnet S, Amiel J. Clinical evidence for a mandibular to maxillary transformation in Auriculocondylar syndrome. American Journal Of Medical Genetics Part A 2014, 164: 1850-1853. PMID: 24677549 , DOI: 10.1002/ajmg.a.36505 .
8. Mehan W, González R, Buchbinder B, Chen J, Copen W, Gupta R, Hirsch J, Hunter G, Hunter S, **Johnson J** , Kelly H, Larvie M, Lev M, Pomerantz S, Rapalino O, Rincon S, Romero J, Schaefer P, Shah V. Optimal Brain MRI Protocol for New Neurological Complaint. PLOS ONE 2014, 9: e110803. PMID: 25343371 , PMCID: PMC4208779 , DOI: 10.1371/journal.pone.0110803 .
9. Gierach G, Geller B, Shepherd J, Patel D, Vacek P, Weaver D, Chicoine R, Pfeiffer R, Fan B, Mahmoudzadeh A, Wang J, **Johnson J** , Herschorn S, Brinton L, Sherman M. Comparison of Mammographic Density Assessed as Volumes and Areas among Women Undergoing Diagnostic Image-Guided Breast Biopsy. Cancer Epidemiology Biomarkers & Prevention 2014, 23: 2338-2348. PMID: 25139935 , PMCID: PMC4337788 , DOI: 10.1158/1055-9965.epi-14-0257 .
10. **Johnson J** , Johnson A, O'Meara E, Miglioretti D, Geller B, Hotaling E, Herschorn S. Breast Cancer Detection with Short-Interval Follow-up Compared with Return to Annual Screening in Patients

with Benign Stereotactic or US-guided Breast Biopsy Results. Radiology 2014, 275: 54-60. PMID: 25423143 , PMCID: PMC4497520 , DOI: 10.1148/radiol.14140036 .

11. Gierach G, Patel D, Pfeiffer R, Figueroa J, Linville L, Papathomas D, **Johnson J** , Chicoine R, Herschorn S, Shepherd J, Wang J, Malkov S, Vacek P, Weaver D, Fan B, Mahmoudzadeh A, Palakal M, Xiang J, Oh H, Horne H, Sprague B, Hewitt S, Brinton L, Sherman M. Relationship of Terminal Duct Lobular Unit Involution of the Breast with Area and Volume Mammographic Densities. Cancer Prevention Research 2016, 9: 149-158. PMID: 26645278 , PMCID: PMC4784982 , DOI: 10.1158/1940-6207.capr-15-0282 .

12. Felix A, Lenz P, Pfeiffer R, Hewitt S, Morris J, Patel D, Geller B, Vacek P, Weaver D, Chicoine R, Shepherd J, Mahmoudzadeh A, Wang J, Fan B, Malkov S, Herschorn S, **Johnson J** , Cora R, Brinton L, Sherman M, Gierach G. Relationships between mammographic density, tissue microvessel density, and breast biopsy diagnosis. Breast Cancer Research 2016, 18: 88. PMID: 27552842 , PMCID: PMC4995674 , DOI: 10.1186/s13058-016-0746-9 .

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14. Ng S, Jomaa M, Pollard C, Ayoub Z, Mohamed A, Garden A, Berends J, Gunn G, Frank S, Skinner H, Phan J, Rosenthal D, Morrison W, **Johnson J** , Sturgis E, Lai S, Fuller C. Cost of surveillance imaging in head and neck cancer patients treated with definitive radiotherapy. Journal Of Clinical Oncology 2017, 35: 6610-6610. DOI: 10.1200/jco.2017.35.15_suppl.6610 .

15. Hansen C, Smith J, Mohamed A, Mulcahy C, Wefel J, Hutcheson K, Chrane K, Phan J, Frank S, Garden A, Smith B, Eichelberger H, Anderson C, McCoy C, Horiates M, Patrick C, Floris S, French C, Beadle B, Morrison W, Su S, Lewis C, Kupferman M, **Johnson J** , Skinner H, Lai S, Hanna E, Rosenthal D, Fuller C, Gunn G, Group A. Cognitive function and patient-reported memory problems after radiotherapy for cancers at the skull base: A cross-sectional survivorship study using the Telephone Interview for Cognitive Status and the MD Anderson Symptom Inventory-Head and Neck Module. Head & Neck 2017, 39: 2048-2056. PMID: 28763137 , PMCID: PMC6082378 , DOI: 10.1002/hed.24876 .

16. Ordóñez-Rubiano E, **Johnson J** , Enciso-Olivera C, Marín-Muñoz J, Cortes-Lozano W, Baquero-Herrera P, Ordóñez-Mora E, Cifuentes-Lobelo H, Enciso-Olivera C, Cifuentes-Lobelo H. Reconstruction of the Ascending Reticular Activating System with Diffusion Tensor Tractography in Patients with a Disorder of Consciousness after Traumatic Brain Injury. Cureus 2017, 9: e1723. PMID: 29188167 , PMCID: PMC5705170 , DOI: 10.7759/cureus.1723 .

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Associated Oropharyngeal Cancer Patients Treated With Definitive IMRT. International Journal Of Radiation Oncology • Biology • Physics 2017, 99: s197. DOI: 10.1016/j.ijrobp.2017.06.489 .

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26. Ng S, **Johnson J** , Gunn G, Rosenthal D, Skinner H, Phan J, Frank S, Morrison W, Sturgis E, Mott F, Fuller C, Garden A. Significance of Negative Posttreatment 18-FDG PET/CT Imaging in Patients With p16/HPV-positive Oropharyngeal Cancer. International Journal Of Radiation Oncology • Biology • Physics 2018, 100: 1360. DOI: 10.1016/j.ijrobp.2017.12.139 .

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33. Ng S, Pollard C, Berends J, Ayoub Z, Kamal M, Garden A, Bahig H, Cantor S, Schaefer A, Ajayi T, Gunn G, Frank S, Skinner H, Phan J, Morrison W, Ferrarotto R, **Johnson J** , Mohamed A, Lai S, Hessel A, Sturgis E, Weber R, Fuller C, Rosenthal D. Usefulness of surveillance imaging in patients with head and neck cancer who are treated with definitive radiotherapy. Cancer 2019, 125: 1823-1829. PMID: 30748005 , PMCID: PMC7234834 , DOI: 10.1002/cncr.31983 .

34. Jethanandani A, Chen M, Gule-Monroe M, Morrison W, Lai S, **Johnson J** . Incidental detection of oropharyngeal cancer with fluciclovine PET. Head & Neck 2019, 41: e141-e145. PMID: 31046173 , DOI: 10.1002/hed.25798 .

35. Jethanandani A, Gule-Monroe M, Chen M, **Johnson J** . Extraneural Metastases From a High-Grade Glioma (HGG) With an H3F3A G34R Mutation. Frontiers In Oncology 2019, 9: 373. PMID: 31139567 , PMCID: PMC6519298 , DOI: 10.3389/fonc.2019.00373 .

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Radiosurgery Using Single-Shot Detectors. International Journal Of Radiation Oncology • Biology • Physics 2019, 105: s116-s117. DOI: 10.1016/j.ijrobp.2019.06.082 .

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